THE

Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XVI. CHICAGO, MAY 2, 1891. No. 18.

LECTURES.

THE CHEMICAL FACTORS IN THE CAUSATION OF DISEASE.

A Course of Three Lectures delivered at the Post-Graduate Medical School of Chicago, March 26, 27 and 28, 1891.

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LECTURE I. GENERAL CONSIDERATIONS OF THE RELATION OF BACTERIAL POISONS TO THE INFECTIOUS DISEASES.

The majority of diseases may be grouped, from an etiological standpoint, into the following classes: 1. Traumatic; 2. Infectious; 3. Autogenous, and 4. Neurotic. It must be understood, however, that in many diseases the cause is not single, but multiple, and for this reason sharp lines of classification cannot be drawn. For instance, the greatest danger in those traumatic affections in which the traumatism itself does not cause death, lies in infection. The wound has simply provided a suitable point of entrance for the infecting agent. Indeed, the break in the continuity of tissue may be so slight that it is of import and danger only on account of the coincident infection. This is true in many cases of tetanus. Furthermore, an infectious disease, whether it originates in a traumatism or not, is markedly influenced by what we are pleased to call the idiosyncrasy of the patient, and by which we mean the peculiarities of tissue metabolism taking place in the individual at the time. A dozen men may be exposed alike to the same infection, and the infecting agent may find a suitable soil for its growth and development in two of these, while in the other ten this same agent meets with such adverse influences that it dies without producing any appreciable effect; or all may be infected, but with differences in degree, as is evidenced by variations in symptoms, in the length of time that the infecting agent continues to grow and develop in the body, and in the ultimate result. Every physician who has had experience in the treatment of typhoid fever, diphtheria, scarlet fever—or, in short, of any of the infectious diseases, will appreciate the importance of the personal equation in his patients. That some neurotic affections originate in traumatism we know. That others of this class are largely due to malnutrition accompanied by improper metabolism or insufficient elimination; or, in other words, are to some extent autogenous, all believe. Understanding, then, that the above classification does not attempt a sharp and marked differentiation of the causes of disease, I wish to devote the first two of the three lectures, which you have kindly asked me to give, to a consideration of the chemical factors in the causation of the infectious, and of the traumatic, autogenous and neurotic diseases in so far as these are influenced by infection.

The science of bacteriology is now entering upon a new and promising era in its development. Heretofore, this science has been largely founded upon morphological studies. Bacteriologists have given their time and attention to the discovery of bacterial forms in the diseased organism, and to the observation of characteristics in structure and growth of different species of bacterial life. The question, do certain germs have a causal relation to certain diseases? having been settled in the affirmative, the next question which naturally arises is, In what way is this causal effect accomplished? How do germs prove harmful? To this question, a number of answers have been proposed. But as I have elsewhere[1] discussed these theories, I will not repeat them here. Suffice it to say that it is now generally admitted that the deleterious effects wrought by germs are due to chemical poisons elaborated by them during their growth. Granting this, it will be at once seen that the morphological study of germs, important as it is, becomes wholly inadequate in ascertaining their true relationship to the diseases with which they are associated. We must now study the physiology and the chemistry of germs, and until this is done we must remain ignorant of the true cause of disease, and so long as we remain ignorant of the cause, it cannot be expected that we shall discover scientific and successful methods of treatment. Suppose that our knowledge of the yeast plant was limited to its form and method of growth, of how little practical importance this knowledge would be. That the yeast plant requires a saccharine soil before it can grow, and that given such a soil

[1] Ptomaines and Leucomaines.

it produces carbonic acid gas and alcohol, are the most important and practical facts which have been ascertained in its study. Likewise, the conditions under which pathogenic germs multiply and the products which they elaborate in their multiplication must be ascertained before their true relationship to disease can be understood.

In saying that the morphological work upon which the science of bacteriology rests almost wholly is inadequate, I wish that it may be plainly understood that I am not offering any hostile criticism upon the great men who have done this work and who have formulated conclusions therefrom. The development of bacteriology has been in accordance with the natural laws governing the growth of all the biological sciences. The study of form naturally and necessarily precedes the study of function. The ornithologist finds a new species of bird. He first studies its shape and size, the color of its plumage, the form of its beak, the number and arrangement of the feathers of the tail and wing, the color of the eyes, etc. All this he can do with a single specimen, recognizing the fact, however, that variations, more or less marked, are likely to be found in other individuals. More time and wider opportunities of observation will be needed before he can tell where and when this bird is accustomed to build its nest, upon what insects, grains and berries, it feeds, with what other species of birds it lives in peace and with what it is at war. A much greater range of observation and study is necessary before the naturalist can tell how his newly discovered species would thrive if carried to a new climate, where it would be compelled to live upon unaccustomed food, to build its nest of strange material and to encounter new foes. I repeat that it is no discredit to the science nor to the men who have developed it, to say that the study of bacteriology has hitherto been almost wholly morphological; without the morphologist, the physiologist and the physiological chemist would not exist. The science having had for its support only morphological studies, the deductions and formulated statements arrived at by its students have been reached in accordance with the knowledge obtained from this source. But now, it being admitted that the causal relation between a given germ and a certain disease is dependent upon the chemical products of the growth of the germ, the fundamental lines of work must be altered in order to correspond with this new knowledge. Let us inquire into the changes, which the introduction of this new factor must make in our fundamental conceptions of the causal relation between germs and disease.

The four rules of Koch have been generally conceded to be sufficient to show that a given germ is the *sole* and sufficient cause of the disease with which that germ is associated. Briefly these rules are as follows:

1. The germ must be found in all cases of this disease.

2. The germ must be separated from other organisms and from all other matter found with it in the diseased animal.

3. The special bacterium thus freed from all foreign matter must, when properly introduced, produce the disease in healthy animals.

4. The microörganism must be found properly distributed in the animal in which the disease has been induced.

Let us give our special attention to the first of these rules for a few moments. What is meant by the statement that the special germ must be found in every case of the disease? How will A, pursuing his studies on the bacteriology of a given disease in America, decide whether or not a bacillus, which he finds, is identical with one which has been reported as invariably present in the same disease, by B, who has investigated an epidemic in Germany? What means are relied upon to prove the identity of these two organisms? The means which have been relied upon wholly are the form, size, reaction with staining reagents, manner of growth on the various nutrient media, and, in exceptional instances, correspondence in their effects upon the lower animals. In other words, with the exception of those instances in which the effects upon animals are tried, the characteristic, by which the germ causes the disease, is left wholly out of consideration.

Indeed, some of the most eminent bacteriologists have taught that in the identification of germs the reactions with staining agents and the appearances of the growths on the various nutritive media are of more importance than the observation of the effects upon animals. Thus, Flügge says:

"Inoculation experiments with both typhoid dejections and pure cultures of the Eberth bacillus have universally been without success. The few experiments in which a typhoid disease has followed inoculation or feeding have been made with impure material containing other active bacteria. It is known that a group of widely distributed organisms, which, however, are wholly different from the typhoid bacillus, have the power when injected subcutaneously or intravenously, of producing in animals death with marked swelling and ulceration of Peyer's patches. To these organisms undoubtedly are due the apparently positive results which some authors have supposed to be due to inoculation with the typhoid bacillus."

In other words, this eminent author teaches that although other germs may cause the essential symptoms and lesions of typhoid fever in the lower animals, they are not related to the germ found in the spleen of man after death from typhoid fever, because they do not react in the same manner with the aniline stains.

Bacteria cannot be classified so far as their causal relationship to diseases is concerned (and this is the most important knowledge to be gained from them) until we know the nature of the chemical poisons which they elaborate, for it is

by virtue of these poisons that they have any causal relationship to disease.

It is possible that two germs may be unlike in form, and yet they may produce poisons which are identical or those which are very similar in their effects upon man. One germ may be stained by Gram's method and another fail to be acted upon when so treated, but this does not prove that their chemical products are totally unlike.

We will suppose that in an epidemic of diphtheria A examines the membrane from a hundred, or we might as well suppose, a thousand children and finds a characteristic, well-marked, easily recognized bacillus in all. He isolates this organism and obtains it in pure culture. He inoculates animals and these manifest all the signs together with the appearance of the characteristic membrane of diphtheria, and in these animals he finds his bacillus growing as in the throats of the children. All of the rules of Koch have been complied with. Has A demonstrated that his bacillus is the *sole* cause of diphtheria? No. He has shown that his bacillus is *a* cause of diphtheria, but he has not proven that there may not be other germs, wholly different from his in form and size, which may also cause diphtheria. The most which can be proven by Koch's rules is that a given germ is *a* cause of the disease. They do not show, as most bacteriologists would have us believe, that this germ is the *sole* cause of the disease.

To illustrate, we will suppose that a botanist in visiting Arabia should find a tree producing a berry, the coffee berry, which when properly prepared and taken into the system produces certain effects. These effects are due to the alkaloid caffein, and our supposed discoverer finds that they invariably follow the drinking of a decoction of these berries. Would he be justified in concluding that the coffee-tree is the only plant in the world capable of producing these supposed characteristic effects? Should he reach such a conclusion, the fact that it is not warranted would be shown by a study of the tea-plant in China and the guarana of South America.

What is meant in the first of Koch's rules by the statement that the germ must be present in all cases of the disease? In answering this question I will give two specific illustrations showing the manner in which eminent bacteriologists have applied this rule. This is well shown in the bacteriological literature of typhoid fever and diphtheria.

Eberth found the bacillus, which is now generally considered by bacteriologists as the sole cause of typhoid fever, in eighteen out of forty cases. In the examination of twenty-eight bodies dead from typhoid fever Gaffky found the Eberth germ in twenty-six; Fränkel and Simmonds reported in twenty-five out of twenty-nine cases; Seitz in twenty-two out of twenty-four; Rietsch in thirty-five out of thirty-six; and Kowalskski found it present in each of twenty-nine cases. From these and similar reports bacteriologists have concluded that this germ is not only *a* cause, but the *sole* cause of typhoid fever. Are they justified scientifically in this conclusion? Have they any right to say that there is no other germ in existence which may cause typhoid fever? The speaker has shown that there are at least two other germs which induce the same symptoms in a more intensified form in the lower animals, and has isolated and studied the chemical poisons of these germs, and recently Babes has shown that in the examination of twelve persons who died at Bucharest of typhoid the Eberth germ was not present, and that an organism giving quite different reactions was present.

Löffler and other German investigators have shown the presence of a bacillus in the majority, not in all, of the cases of diphtheria which they have studied, and they again conclude that this bacillus is not only a cause, but the *sole* cause of the disease. In a large number of cases in New York, Prudden failed to find the Löffler bacillus, but did find a wholly different organism. No one acquainted with Prudden's work will question the accuracy and care with which it was done. It is true that the chemical poisons of the Löffler bacillus have been studied, and no one can doubt that it is a cause of diphtheria, but it may be found that the streptococcus of Prudden is capable of elaborating a similar poison.

The moment that it is granted that the real poison of the disease is chemical in character, it becomes evident that no one is justified in saying that one germ is the sole source of such a poison. Such a statement would be as much unwarranted as one that the coffee-tree is the sole source of caffein, or that the *strychnos ignatii* is the only species of the natural order *loganiaceæ* which produces a convulsive poison. In other words, the specific cause of a given disease is not to be determined wholly by the morphology of the germ found associated with that disease in a given epidemic, but by the character of the chemical poison which is the true *materies morbi*.

I think that we are justified in concluding that in those diseases in which the four rules of Koch have been complied with, the germ is *a* cause of the disease, but our range of observation must be much wider than it now is, before we can say that the given germ is the *only* cause of the disease. *It may be found, and I think this highly probable, that those few infectious diseases, such as anthrax and tuberculosis, which have such well-marked typical clinical histories, are due to equally well-marked and morphologically distinct microörganisms which can be recognized by microscopical study alone; but I do not expect that this will prove to be true in diseases showing such wide variations in symptoms as is done by typhoid fever and cholera infantum.* In

fact I am convinced that these last mentioned diseases may and do result from any one of a number of bacteria which are in form, size, methods of growth and reactions towards staining reagents, quite distinct one from the other, but which produce poisons similar in their effects.

That you may be convinced of the truth of the foregoing statements I give a few specific instances which will confirm them, and demonstrate that in their causal relation to disease, germs cannot be classified from a study of the form, size, methods of growth and reactions with staining reagents.

Typhoid Fever.—Eberth lays special stress upon the fact that his germ does not take the ordinary stains readily, and says that it is not colored by Bismark-brown and hæmotoxylin, and only slightly by the other ordinary stains; but what is the verdict of others on this point? In the paper in which he calls attention to the fact that he has photographed the short bacillus before Eberth had published his discovery, Koch says: "Eberth states that these short bacilli have but slight tendency to take stains. The photograph here given shows, to the contrary, that in taking stains these bacilli are but slightly inferior to other bacteria." Gaffky states that the best coloring agent is methylen-blue, but that the bacilli are stained very well with methyl-violet, gentian-violet, Bismark-brown and fuchsin, and less well by hæmotoxylin. Coats had no difficulty in staining with Bismark-brown. Meyer had the same difficulty as Eberth in staining; but Friedlander found that the bacilli in sections from the spleen stained intensely. In view of this variety of statement, can any one claim that these men were working with a germ which can be distinguished from others by its tinctorial properties?

Tetanus.—The tetanus germ of Kitasato and that of Tizzoni and Cattani are known to be quite distinct. Cultures of the former in bouillon are virulent, while those of the latter in the same medium are inert. Not only are these two organisms morphologically and biologically different, but their poisons are chemically unlike. Brieger and Fränkel precipitated the poisonous albumin of the germ of Kitasato with alcohol, but this reagent renders the poison of the Italian germ inert. Notwithstanding this difference, however, both microörganisms and their chemical products produce tetanic convulsions and death in the lower animals. We must, therefore, admit that there are at least two distinct germs, each of which is capable of causing tetanus, and how many other bacteria with like properties there may be no one can tell.

The Summer Diarrhœas of Infancy.—In this class of diseases all attempts to find a morphologically specific germ have failed. The labors of Booker in this country, and of Escherich in Germany, have shown that no one species or variety is constantly present. No less than thirty distinct germs have been obtained from the bowels and fæces of children suffering from the summer diarrhœas. A germ which is frequently present one season will not be found at all the next. Are we to conclude from this failure to comply with the first of Koch's rules that the summer diarrhœas of infancy are not due to microörganisms? Certainly not; especially in view of the fact that Baginsky and Stadthagen have shown that the bacillus discovered by Baginsky produces a chemical poison which induces diarrhœa in the lower animals, and I have shown that at least three of Booker's bacteria produce poisons which have similar effects. To the contrary, we are justified in concluding that the diarrhœa may be due to any one or more of a number of germs which differ from one another sufficiently morphologically to be classified as distinct species. The similarity among these bacteria will not be discovered by a study of their size, form and reactions with staining reagents, but by a study of their chemical poisons, the agents by virtue of which they cause the disease. At the meeting of the American Medical Association at Newport, in 1889, I proposed, in a paper on the etiology of typhoid fever, that in those cases in which the lower animals are not available on account of their insusceptibility, before a given germ can be considered a cause of a disease, it must be shown that that germ can produce chemical poisons which will induce in the lower animals in an acute form the characteristic symptoms of the disease. That this rule would be a wise one I have become, even more strongly than I was at that time, convinced.

In the little volume on "Ptomaines and Leucomaines," written by Novy and myself and published in 1888, I gave the following definition of an infectious disease: "An infectious disease arises when a specific, pathogenic microörganism, having gained admittance to the body and having found the conditions favorable, grows and multiplies, and in so doing elaborates a chemical poison which induces its characteristic effects."

It should be remembered that this definition was written at a time when the importance of the chemical products of bacterial growth was not generally recognized. Indeed, at that time bacteriologists quite universally held to the mechanical interference theory, and more than a year later so good an authority as Welch, of Baltimore, stated that a knowledge of the chemical products of bacteria was interesting but not essential to a belief in the causative agency of a microörganism, and he went still further, inasmuch as he claimed that the successful inoculation of animals is not necessary in order to prove the causal relationship of a certain germ to a given disease. Now, it is generally conceded that a successful inoculation is a proof of the formation of deleterious chemical products, and in

case successful inoculation cannot be obtained on account of the insusceptibility of the lower animals, the demonstration of the elaboration of chemical poisons is deemed not only interesting but important. For instance, the strongest proof that the cholera bacillus of Koch has a causal relation to Asiatic cholera has been furnished by the study of its chemical products, and similar studies of many of the other infectious diseases have yielded results which are of both interest and importance, as I shall endeavor to show in the next lecture.

The only modification which I desire to make in the above definition of an infectious disease consists of an elaboration of what is meant by a "specific" microörganism. The specific nature of a germ is to be determined not by its size, form, growth on nutritive media and reactions with staining reagents, all of which properties are more or less variable with the conditions under which the germ has been grown, but upon its capability of producing within the body deleterious substances.

The study of the chemical factors in the causation of the infectious diseases opens up for us a field in which much work must be done. Let us attempt a statement of the nature of some of the researches that must be carried out along this line.

In the first place we must ascertain what germs are toxicogenic. This would necessitate a chemical study of all kinds of bacteria, both the pathogenic and the non-pathogenic. Every fact learned in this investigation will not have its practical application in medicine, but will have its scientific value, and many will most probably be of more or less direct service to man. There is a vast field here for careful scientific work, and I should be glad to see these researches carried out largely in our own country.

Secondly, it must be determined under what conditions these germs are toxicogenic. It is not at all probable that all those bacteria which are capable of producing poisons when grown on dead material outside of the body are also capable of multiplication and the production of the same substances when under the influence of the various secretions of the body. Some bacteria are destroyed by a normal gastric juice within a short time, while others are not. The conditions of life and growth are different when the infecting agent is introduced into the blood from what they are when infection occurs by the way of the alimentary canal. This is well recognized in the two forms of anthrax, one of which arises from inoculation through a wound and the other by way of the intestines. A preventive treatment which is efficient in the one is of no service in the other. Then again, we are to study those conditions of the blood and other fluids of the body, which are especially unfavorable to the successful implantation or the continued existence of an infectious disease.

Thirdly, the chemical properties and the physiological action of these poisons will demand careful attention. Some are especially depressing in their action upon the heart, others seem to manifest their energy upon the central nervous system, while others still act like true gastro-intestinal irritants. In the study of the toxicological effects of these bacterial poisons every method of investigation known in the most advanced physiological work must be employed. The action of these agents on the heart, the brain, the spinal cord, etc., must be thoroughly studied.

After all this has been done we shall certainly advance in our knowledge of the treatment of the infectious diseases. The morphological study of bacteriology has been of inestimable value to us in the prevention of the infectious diseases. It has rendered the investigation of disinfectants both possible and imperative, and by the knowledge thus gained yellow fever has repeatedly, and Asiatic cholera in one instance at least, been kept from our shores. Epidemics of small-pox, diphtheria and scarlet fever have been arrested. In this way scientific medicine has been advanced, and such an advance is never made without great benefit to mankind in general. Moreover, antiseptic surgery, which had already been inaugurated by the genius of Lister, has received the scientific support which was necessary to its constant, universal and correct employment. All of these benefits, and possibly more, which do not occur to me at this time, have been accomplished, and to Pasteur, Koch and the host of others who have rendered this possible, we should be and are grateful. But what can those of us who are engaged in the treatment of the infectious diseases say of the present condition of the practice of medicine? As one of this number I am forced to admit that my successes are few and my failures many. Are we satisfied with the treatment which we now employ for tuberculosis, diphtheria, scarlet fever, typhoid fever and the other internal infectious diseases? Do we treat these diseases with much more success than our fathers did? They prescribed for their consumptive patient liberal food, cod-liver oil and all the open air exercise possible. They never carried a Bergeron hydrogen-sulphide bag, used a Weigert hot air oven, or injected Koch's lymph; but can we say that our successes are markedly more numerous than theirs? Has the knowledge of germs aided us in the treatment of these diseases? Do we today possess one germicidal agent which will destroy the bacilli of typhoid fever in the spleen of our patient and at the same time do no injury to the patient himself?

For myself I am perfectly willing to acknowledge that I am not satisfied with my success in the treatment of the infectious diseases, and it

seems to me that careful scientific study along the lines which we have been following to-night holds out sufficient encouragement to lead us to further study. Could we treat morphine poisoning before we knew anything of the chemical properties or the physiological and toxicological effects of this alkaloid? Can we counteract or antidote the typhoid poison, before we know anything of its nature or its manner of action? I do not mean to imply that it is the duty of each of us to become a chemist or to undertake physiological research. We need as much as anything else a closer study of these subjects at the bedside. The scientific methods of the laboratory should be carried into the wards of the hospital. The physiologist keeps the dog upon which he is making some important study under his own trained eye and trusts no one else with the observations. The patient with typhoid fever in the hospital ward is seen by his medical attendant once or twice during the day. The remainder of the time all observations must be made and records taken by a nurse, who is not only devoid of scientific training, but has so much work to do that but little time can be given to the individual patient. There is work enough in the study of the poisons of disease to employ the chemist, physiologist and clinician, and the greatest good can be secured only by the combined labors of all.

You may think it strange that, enthusiastic as I am about the importance of the study of the bacterial poisons, I have said nothing about the therapeutical uses to which some of them may be put, as evidenced by the introduction by Koch of his so-called lymph or tuberculin as a cure for tuberculosis. There may be valuable curative agents discovered among the products of bacterial activity, but I have never believed that a disease will be cured by the administration of the very poison which is causing the disease. I say I have never believed this, but I am open to conviction on this point, and take much interest in a study of the results now being reported from all parts of the world, as well as in my own observation of the effects of the proposed cure. So far, however, I have seen no sufficient reason for any change in my belief on this point.

(*To be continued.*)

A PORTRAIT OF VIRCHOW.—The famous portrait painter Franz Lenbach of Munich is painting a portrait of Virchow for the Berlin Medical Society. It will be unveiled at a festal meeting of the Society, and presented to the Langenbeck House. There it will hang beside a portrait of Langenbeck in the hall destined for the meetings of the medical societies of Berlin, for congress assemblies, festal ceremonies, etc.

ORIGINAL ARTICLES.

THE EFFECT OF ARTERIO-SCLEROSIS UPON THE CENTRAL NERVOUS SYSTEM.

Read before the Clinical Society of Maryland, January 16, 1891.

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In order to appreciate fully the significance of disease of the blood vessels of the central nervous system, it is necessary to keep in mind the general plan of the blood supply of the brain and cord. If we disregard a few meningeal branches from other arteries, the brain is supplied by four trunks: the two internal carotids and the two vertebrals. It is not necessary to mention the well known arrangement of these arteries at the base of the brain into the circle of Willis. The blood-vessels that supply the brain are peculiar for their long and tortuous course through bony canals, and the fact that they are unaccompanied by veins. After having formed the circle of Willis they send branches to supply the different regions of the cortex, and other branches which penetrate the substance of the brain and supply internal parts. These latter branches while they are small are very important, because they supply the basal ganglia and internal capsule. They do not communicate with each other or with the cortical system of vessels and hence are known as end arteries, or what is a better designation, as terminal arteries. The term, end artery, is not a very good one, as confusion may sometimes arise between this and the pathological term, endarteritis.

The branches which supply the cortex are perhaps to a certain extent terminal arteries, though anastomoses of the larger branches take place in the *pia mater*. From these branches ramifying in the pia mater, arterioles pass into the cortex perpendicularly to the convolutions. These arterioles may be divided into two groups. The short or nutrient arterioles which form a network in the gray matter of the cortex, and the long or medullary arterioles which pass deep down into the white matter with little or no communication with each other, with the short arteries or the basal branches.

The significance of this peculiar mode of distribution of the arteries of the brain becomes at once apparent when we consider the effects of plugging by thrombus or embolus of a vessel which has no free anastomosis.

The spinal cord derives its blood supply from the vertebral, intercostal, lumbar and sacral arteries. Each vertebral gives off a branch, which branches unite and form the anterior spinal artery which runs in the anterior median fissure the

whole length of the cord. From this artery branches pass deeply into the fissure and along the anterior nerve roots. The branches which penetrate the fissure pass on into the gray matter of the anterior horns, where they form a rich network. The vertebrals also give off posterior spinal arteries which do not unite as do the anterior vessels, but pass down the posterior aspect of the cord, one on either side, near the attachments of the posterior nerve roots; these branches are united however, by numerous anastomoses, and send small twigs towards the posterior median fissure. From the periphery of the cord numerous branches pass into its substance, some of them reaching the gray matter. James Ross has shown that the arteries which supply the different areas of the cord are fairly constant and regular in their distribution.

The minute anatomy of the blood vessels of the central nervous system presents certain important peculiarities. The vessels are not as closely applied to the tissue in which they ramify as are the vessels in many other parts of the body, but lie in little canals known as the peri-vascular spaces. Most histologists agree that these spaces are lined by a delicate membrane, and communicate with the spaces in which lie the cells. They are undoubtedly lymph spaces, containing lymph corpuscles, and form the only lymphatic system really that the central nervous system possesses. If we examine a fresh or carefully prepared section of the brain we find that the structure of the arteries differs somewhat from the structure of the arteries elsewhere in the body. The coats are in the main the same, but between the *muscularis* and *adventitia* we find a space known as the adventitial space. The two coats are not in actual contact. This space may be regarded as a lymph channel. The veins possess a somewhat similar arrangement.

It was formerly supposed that arterio-sclerosis, and particularly its later stage, atheroma was not of common occurrence in the arteries of the central nervous system. More recent investigation, however, has shown that this condition is frequently met with. It is to be noted, however, that one may fail to find any marked changes in the blood vessels of the brain and cord of subjects in whom there existed marked sclerosis elsewhere, and the contrary is perhaps sometimes seen, namely artheroma occurring in the vessels of the brain and cord while it is absent or not well marked in the general arterial system. The alteration in structure of the vessels of the brain and cord, affected with sclerosis does not differ materially from that found in the vessels elsewhere, and which was so clearly described by Dr. Welch at a former meeting of this Society. The fact that the vessels of the central nervous system lie in lymph spaces and are not supported by the surrounding tissue, and also the fact of the space which exists between the *media* and *adventitia*, the adventitial space to which attention has been directed, offers special facilities for these vessels to alter their shape and become tortuous under high pressure, and greatly favors the formation of aneurism. The basal arteries and the large branches derived from them present thickenings, tortuosities, dilatations, aneurisms, and the microscopic changes which are familiar. If a section of the brain be made, the small arteries can be seen sticking up like bristles, with gaping mouths. If the small sized twigs be gently pulled out they will often show the most remarkable tortuosities. Irregularities in the size of the vessels, dilatations and constrictions occurring at frequent intervals in the course of the same vessel are commonly met with. Where the branches are given off there is often a marked dilatation. Small aneurisms, both fusiform and sacular are frequent and characteristic. The mode of formation of these miliary aneurisms, and their bearing upon intracranial hæmorrhage, has given rise to some difference of opinion. Charcot and Bouchard, who first drew attention to this curious and important phenomenon, thought that the aneurisms were the result of an arterio-sclerosis, which began as a peri-arteritis. That is to say that the inflammatory process began outside the artery. Cornil and Ranvier held that the aneurisms were the results of an endarteritis and a peri-arteritis combined. In all probability the disease begins in the cerebral arteries as elsewhere by a degeneration of the middle coat, as has been shown by Thoma and others.

This condition of miliary aneurism is rarely met with in the spinal cord. Most authorities agree with Charcot in saying that this peculiar formation of small aneurisms in the vessels of the brain, is the underlying cause of most if not all cases of ordinary intracranial hæmorrhage. It might perhaps seem to be stating the case too strongly to say that miliary aneurism is always to be found in apoplexy, but it certainly is the rule, though exceptions do occur. Whenever they have been systematically sought for in persons dying from hæmorrhage of the brain, they have been found, in nearly all cases. It requires some care and a good deal of patient work to detect their presence at times, for while they may exist in one case in great numbers, another case will show perhaps only three or four after the most careful search. Then, as has been noted, we may have numerous miliary aneurisms, without marked atheroma of the vessels elsewhere. Twenty-five per cent. of Charcot's cases in which miliary aneurism was marked in the cerebral vessels showed no condition of atheroma of the arteries generally. It is very possible, then, that observers, not noting any atheroma in other vessels, have not been led to look for it in the brain, and so the frequency of aneurism, and consequent-

ly of arterio-sclerosis, has been underestimated by some authorities. On the other hand, there may be marked atheroma of other arteries and no miliary aneurisms found in the brain. This was illustrated in a case recently examined, in which the aorta showed large plaques of atheroma, and yet the most careful investigation failed to reveal a single miliary aneurism.

Next in importance to the formation of aneurism comes the great tendency to the formation, in the diseased vessels, of thrombi and resulting emboli. The roughened, diseased *intima* offers the most favorable conditions for thrombus, and this liability is enhanced by the fact that we may have local disturbances of the circulation, as slowing of the blood stream by a constricted vessel. The significance of thrombosis of the cerebral vessels becomes at once apparent when we consider the fact already alluded to, that the arteries passing up from the large trunks at the base of the brain to the basal ganglia and internal capsule, as well as the cortical system, are for the most part terminal arteries, and hence plugging of these vessels means softening of the area of the brain to which they are distributed, since no provision exists for collateral circulation.

Another pathological condition which is met with in sclerosis of the arteries of the brain, and which has perhaps some clinical significance, is the great tortuosity and unequal calibre of the vessels. In following the course of the smaller arteries, under the microscope, observing now a marked dilatation, now a narrowing almost to obliteration, and everywhere tortuosity, one cannot help thinking that these marked changes in the lumen and direction of the vessel must produce decided irregularity in the blood supply of the area to which it is distributed. It must be borne in mind that many of the brain centres are in constant activity, and hence must have a regular and uninterrupted supply of blood.

When we come to consider the effect of arterio-sclerosis upon the spinal cord, we have far fewer data from which to draw conclusions than in the case of the brain. Miliary aneurisms of the vessels of the cord, while they have been found, are rare. Thrombosis and embolism sometimes occur, and hæmorrhage is now and then met with which would seem to have been dependent upon disease of the vessels. It seems to me that we might with some show of plausibility attribute certain degenerative cord lesions to arterio-sclerosis. We have seen that the arteries of the cord are distributed with a certain degree of regularity to the different columns of fibres. Now in conditions of sclerosis of the columns of the cord we commonly meet with a very decided increase of the neuroglia or connective tissue element. Such outgrowth produces compression and subsequent degeneration of the nerve elements. Now it seems to me that we might suppose, without forcing the facts too much, that the hyperplasia of connective tissue in the sclerosed vessels, extending into, or beginning in the *adventitia*, might encroach upon and compress the nerve elements, or set up a connective tissue outgrowth around the blood-vessel, which would extend into the substance of the cord. Again, it is supposable that in conditions of arterio-sclerosis the blood supply to the connective tissue elements of the cord, the neuroglia, being irregular or even markedly deficient, an irritation might be produced which might lead to outgrowth of connective tissue and consequent damage to the nerve elements proper. The causes usually assigned as the most important in the production of sclerosis of the columns of the cord, such as alcoholism, syphilis, exposure to cold and wet, over-exertion, great mental excitement and the like, are many of them just the factors which are the most potent in the production of arterio-fibrosis. There been no observations that I am aware of bearing upon this point, either for or against the theory proposed.

It must be borne in mind that we may have a condition in the veins similar to that found in the arteries. This point has been clearly brought out by Spillmann, of Nancy, quoting Thiébaut, Thoma, Huchard, Borel and others. Of course this fact has not as much significance in considering the effect of atheroma in the central nervous system as in other parts of the body, owing to the peculiar arrangement of the veins in the former case.

One fact strikes us with peculiar force when we consider the clinical bearing of arterio-sclerosis and atheroma, and that is that we must distinguish between the condition occurring in the young and in those in early middle life, and the same condition occurring in the old. In aged people it would seem to be a part of the general decay of the tissues. Add to the general tendency to fatty degeneration, an enfeebled circulation, and we have the conditions most favorable to the deposit of the lime salts. And yet the system seems to adapt itself so perfectly to the gradual change that we may have the most marked conditions of atheroma with no attending symptoms other than those incident upon old age. How far the general symptoms of senility may be due to this change in the blood-vessels it is not easy to say. That this condition of the blood-vessels, causing irregularities of the circulation and impairment of nutrition, is an important factor in the production of many of the symptoms of senility, is almost certain.

It is not in the aged, however, but in the individual in middle life who has grown old before his time, old in all but years, that we see most clearly the evil effects of atheroma. The tissues of this latter individual have not become accustomed to the changed condition of the blood vessels, and have not adapted themselves to the irregular or deficient blood supply.

The study of the effects of arterio-sclerosis on the central nervous system resolves itself into the study of, first, senility or physiological decay, a subject of great interest and wide range, and which can be touched upon only very lightly in this paper; secondly, the effects of atheroma in the middle-aged; the study of premature old age, of age as a disease, and finally the predisposition to hæmorrhage in the brain and cord of atheromatous subjects, and the possible effect of the condition upon certain chronic degenerations of the cord.

I have noted the symptoms in about fifty individuals at Bay View Asylum, in whom atheroma was more or less well-marked, and have been surprised to find what a very high degree of arterial deformity may exist without producing any very marked symptoms. The following summary from the careful tables which were kindly prepared for me by Dr. Sanger will illustrate this point.

		p. c.
Total number of persons examined	50	
Age of youngest person examined	43	
Age of oldest person examined	92	
Average age of persons examined	68.5	
Number of males examined	30	60
Number of females examined	20	40
Number of blacks examined	17	34
Number of whites examined	33	66
Number showing specific history	7	14
Number showing non-specific history	23	46
Number showing uncertain history	20	40
Number of intemperate persons	25	50
Number of temperate persons	25	50
Number whose arteries present no sclerosis at wrists	14	28
Number whose arteries present slight sclerosis at wrists	21	42
Number whose arteries present marked sclerosis at wrists	15	30
Number whose temporal arteries are not marked	13	26
Number whose temporal arteries are slightly marked	25	50
Number whose temporal arteries are marked	12	24
Number in which heart lesions were found	10	20
Number in which albumen was found in urine	6	12
Number showing mental impairment	16	32
Number of hemiplegias	12	24

Of course it is not intended to draw any very definite conclusions from such a comparatively small number of cases, but they are simply used by way of illustration. The atrophy and actual loss of brain weight in old persons is perhaps due in part to the faulty blood supply, which is consequent upon atheroma. While one would hardly like to say that atheroma of the arteries is always present in old persons, still the great frequency with which it occurs, makes it a physiological rather than a pathological degeneration. It is to this decay, this alteration of the blood supply to the central nervous system, this lack of nutrition to the centers, that we must attribute the ordinary mental changes of old age. The blood supply to the centres is imperfect, causing perhaps alteration in the cells, innervation is enfeebled and all the mental processes are slow. Often we see something more than a mild decay of the mental faculties. The various forms of senile dementia, present pictures in which the physiological process of decay has been in part replaced by a more decided degeneration, a pathological process. We may have conditions of dementia with hypochondriacal delusions, with total loss of memory, with almost entire abolition of the intellectual faculties, dependent largely if not entirely upon an atheromatous condition of the vessels and the changes in the brain incident upon such condition. It is not this state of gradual senile decay, dependent though it is upon atheroma that especially engages our attention; it is this same condition of atheroma which has overstepped the physiological bounds. That is to say a condition of atheroma in persons whose age does not warrant such a change, or as noted above, symptoms other than those of mere senility, occurring in elderly people. In persons who are not yet old, but whose arteries are atheromatous, we often see very marked mental changes. The general disposition of the individual often undergoes some decided change: he becomes irritable, excitable, hysterical, or a condition of hypochondria with apathy supervenes. The mental symptoms peculiar to old age are intensified. The picture is not unlike that of beginning general paralysis before the advent of delusions. There is an inaptitude for any kind of mental exertion, and the memory becomes very bad. Such symptoms as these are frequently met with and are commonly ascribed to the effect of the diseased condition of other organs than the brain, notably to the effect of the lesion which often coexists in the kidney.

Bearing in mind the condition of the arteries in the brain, and the consequent derangement of the circulation, it is easy to conceive how such symptoms as these detailed are produced. The small arteries are often narrowed almost to the point of obliteration, and any increased vaso constrictor action will temporarily close them.

One of the most pathognomonic symptoms of arterio-sclerosis of the vessels of the brain is transient paralysis. These attacks are sometimes very frequent and well marked. They come on with the suddenness of embolism, or again gradually like the formation of a thrombus, last from a few minutes to a few hours and are entirely recovered from. Such a person nearly always dies from hæmorrhage or softening as the result of the rupture or permanent closure of the vessel. Due to the same cause, narrowing or temporary closure of the small arteries are severe headache and vertigo. This last symptom has been carefully investigated recently by Grasset who finds in addition to simple vertigo, epileptiform vertigo and attacks of syncope. The most important change, however, in the vessels is the formation of miliary aneurisms, which has been described, for it is to this condition that most cases of simple apoplexy are due. Given this condition of miliary aneurism, it is easy to see how with high arterial tension present the conditions for hæmorrhage are most favorable. The fact that arterio-sclerosis is undoubtedly as has been shown, the underlying cause of miliary aneurism, and also that the same condition favors the production of thrombosis and

embolism, gives the subject great importance.

The limits of this paper do not permit any discussion of the subjects of intracranial hæmorrhage and thrombosis and embolism. Miliary aneurism, as has been noted, is very infrequent in the vessels of the cord, and as non-traumatic hæmorrhage into the cord is a comparatively rare event, this fact might be adduced to strengthen the position taken, that these small aneurisms are always, practically, the precursors of hæmorrhage in the brain. Of course there are other reasons why hæmorrhages into the cord are infrequent, as the length, size and mode of distribution of the spinal vessels. It is doubtful whether any symptoms can be ascribed to changes in the blood-vessels of the cord, unless we include anæmia and hyperæmia, which can hardly be said to be conditions which can be recognized clinically.

The purely theoretical suggestion mentioned in the first part of this paper, that perhaps atheroma of the vessels of the cord may be a factor in the production of sclerotic degeneration of the fibres in the manner indicated, may, if confirmed by any facts, prove useful in clearing up our somewhat indistinct ideas of the production of these lesions.

There are, as we have seen, no very pathognomonic symptoms of arterio sclerosis of the vessels of the central nervous system. The diagnosis must rest upon the general symptoms that have been outlined. When a patient presents certain of these symptoms, and shows sclerosis of the vessels that can be examined, we can pronounce with some degree of certainty upon the probable condition of the arteries of the brain. The ophthalmoscope sometimes, though by no means always, shows us a condition of sclerosis in atheroma of the vessels of the retina. Raehlmann found changes in the vessels in forty-four out of ninety cases examined, or nearly fifty per cent. He describes a certain hazy appearance of the vessels, looking as if a thin veil were stretched over them. He noted dilatations and constrictions in the vessels and in two cases aneurism, and found the veins affected also, in twenty-six per cent. of the cases.

One can say little as to treatment, other than the general rules that are laid down for the treatment of the general condition. It is necessary for patients who have a high degree of arterio-sclerosis to avoid violent sudden exertion for obvious reasons. At the same time systematic, regular exercise in the open air, with hill climbing in suitable cases, is of great value. Avoidance of excessive amounts of liquids is certainly an important point. Large quantities of water cannot but be injurious, by overfilling, or at least greatly increasing the total quantity of fluid in vessels that are already embarrassed. The diet should be light and nutritious. An occasional saline purge is beneficial, such as concentrated magnesia sulph. The bromides are often of decided value in quieting the cerebral circulation, as are also warm baths. Nitro-glycerine is frequently of value in these cases, especially when we have a sudden raising of arterial tension and the danger of intracranial hæmorrhage imminent. In these acute conditions an ice cap to the head is valuable.

The above imperfect sketch of arterio-sclerosis of the central nervous system will, I trust, aid in directing attention to the importance of the subject, and show the necessity of more careful clinical work to make the picture complete.

9 E. Townsend St.

REPORT ON THE OPHTHALMOSCOPIC EXAMINATION OF DR. PRESTON'S CASES OF ARTERIO-SCLEROSIS.

BY HARRY FRIEDENWALD, M.D.,
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As a preface to the short report of the result of the ophthalmoscopic examination of Dr. Preston's cases, I should like to state that it is but recently that attention has been attracted to those changes of the retinal arteries as are found in general arterio-sclerosis. A few years ago Ole Bull[1] described several cases of disease in the retinal arteries, and showed how this was the cause of symptoms frequently ascribed to embolism. Raehlmann[2] made an exceedingly careful study of the relation between general and retinal arterio-sclerosis, besides collecting a few scattered cases in literature. He examined ninety cases of general arterio-sclerosis and found that in most cases the retinal arteries were narrow and tortuous, that 19 per cent. showed whitish margins along the retinal arteries, that 21 per cent. presented localized narrowings in their course, but that retinal aneurisms are very rare. Confining ourselves to these signs of arterial disease without considering the changes in the veins which he likewise frequently found, we must admit that the results are very remarkable. They are, indeed, surprising, if you remember that in all works on ophthalmoscopy such changes are not considered throughout; 6 per cent. referred to; that in the very latest, that of Gowers, we find the statement referring to general atheroma, that "in cases in which it is well marked elsewhere" he has "often looked for appearances in the retina suggesting its existence but without success." Prof. Hirschberg recently published the results of very careful ophthalmoscopic examinations of fifty persons between the ages of 60 and 80 years. Besides the many other "senile changes" he finds that 46 per cent. of the persons examined showed changes in the retinal arteries; 44 per

[1] Ninth International Medical Congress Reports, Washington, Vol III, p. 663.
[2] Zeitschr. f. Klin. Med., H. 5 and 6, Vol. XVI.

cent. of the persons examined showed variations in the caliber of the arteries at different points in their course; 2 per cent. showed whitish lines on their margins.

Before going further, it would be well to explain more definitely what is meant by these terms. The healthy retinal artery is perfectly transparent. What we see is the blood column within it. When the walls of the arteries thicken at the expense of their inner caliber and the thickened portion remains as transparent as the healthy vessel—and this is commonly the case—we detect the change in the narrowing of the column of blood. This thickening may take place at localized points, causing the localized variations in the thickness of the blood column or throughout the course of the vessel. In the cases mentioned above, we must, therefore, remember that the terms refer only to the blood column, and that we infer from these the condition of the vessel, for instance, when Raehlmann describes "localized narrowings of the arteries," there are only localized narrowings of the blood column, and we infer from these that there are localized *thickenings of the walls of the vessel.* In those cases where "white lines are seen along the margins of the vessels," the wall of the vessel has lost part of its transparency, and reflects some light which is seen as the white lines. This depends upon a change in the substance of the vessel, or a deposit within it different from that in the transparent thickening mentioned above, and is much rarer.

My attention was first drawn to the localized narrowings (apparent!) of the retinal arteries in cases of optic nerve atrophy, and especially in those due to embolism of the central retinal artery, in which conditions they are much less uncommon than is ordinarily supposed. But their importance struck me when I saw them in a case of beginning *retinitis albuminurica* where the signs of inflammation were almost limited to but one eye, while the localized narrowings could be seen in the retinal arteries of both eyes.[3] Since then I have paid more attention to this point and have found the changes not infrequently.

It was with great pleasure, therefore, that I undertook to examine the retinal arteries of Dr. Preston's cases. I must mention that some of the cases were in bed when I was at the asylum, and could not be examined sufficiently carefully with the ophthalmoscope to look for these minute changes. For this reason only twenty-nine cases were examined, or fifty-eight eyes. In eighteen of these eyes (in twelve patients) an ophthalmoscopic examination was rendered impossible by such impediments as cataract, corneal opacities, etc., and this reduced the number of retinæ examined to forty (in twenty-three patients).

Of these forty retinæ, nineteen presented decided local or general narrowing of the arteries with frequent tortuosity (twelve patients); ten presented moderate or slight changes of the same kind (seven patients); four presented whitish margins along the arteries (two patients); one presented a hæmorrhage on the papillæ; seven appeared thoroughly normal (five patients); two appeared thoroughly normal, while there were other extensive retinal changes. Besides these I noted in several cases senile retinal changes, in the characteristic little yellowish spots due to colloid degeneration of the lamina vitrea of the choroid.

The proportion of cases in which decided changes were found is so great that I am led to thoroughly accord with Raehlmann as to the frequency of these changes and their importance in diagnosis.

[3] Prof. ftirschberg published this case in detail, Centralblatt f. Augenh. 1890, p. 206.

A KNOWLEDGE OR A TIME REQUIREMENT. A PLEA FOR A MORE RATIONAL SYSTEM OF MEDICAL LEGISLATION.

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The very general move in the direction of medical legislation, during the past year or so, indicates the urgent demand on the part of the profession, for the just and proper regulation of the practice of medicine. In addition it is significant of the increase in competition and of the growing metamorphosis of the art of medicine into the science of medicine, of which the precepts and teachings follow such fixed laws, that he who studies may learn.

THE NINETEENTH CENTURY.

Our nineteenth century is a wonderful one—the like of which has never been seen in the whole compass of earthly years. Born during the great struggle of freedom against tyranny and oppression, living through the downfall of the ancient superstition of the divine right of Kings, it is about to make its exit from a world whose democracy is stamped in every act, and whose parting requiem to the hoary century will be "Vox populi, vox Dei." The people—the Demos rule. Throughout this whole century an equalizing power has been exerted which has been so thoroughly engrafted upon the lives and actions of men, that it has become the spirit and temper of the age.

Such a condition must have a positive bearing upon our civilization and its effects may be concentrated in the one expression, competition. Fair, open competition is the life of our institutions, but when it begets exclusion, it becomes the very bane of their existence.

MECHANICS AND DOCTORS.

"Too many mechanics" is the cry, and forthwith in not a few branches of labor an elaborate system of restriction is practiced, and the number of artisans is maintained small by control of apprenticeship vested in the workers of that special line. As a consequence we find an undue limitation of the number of apprentices, and an equally undue extension of the time of apprenticeship, all because those within the inner circle fear honest competition.

What a decided similarity certain misdirected members of the medical profession would encourage between their high-aiming profession and these restricted divisions of labor. Do we not hear on all hands the cry, "Too many doctors, too many medical colleges, let both be limited." Again, like the apprentice-restricting mechanic, they say, "Make them study longer; make the restrictions greater" in face of the fact that they who rant and cry "reform" underwent the application of no such law, nor would. They cry, "The wolf! the wolf!" but fail to protect their charge by just and equable safeguards, preferring, it appears, to resort to artificialities.

MEDICAL LEGISLATION.

It is a sad feature for our vaunted, fraternal and unselfish feeling for one another, that such an affair as medical legislation is necessary. Its origin, coeval with that of medicine, dates back to the time of Hippocrates, whose stringent oath formed at once an obligation and a text for future laws. Throughout the middle ages medical laws prevailed, though more or less crude. In these more modern times medical legislation is an element in every civilized set of laws, some natural and just, others artificial and presumptuous.

Our own country is at present in the throes of the subject and each State is prodded here and there, with persuasive prayers or emphatic demands, emanating not from the people but from the doctors. The consequence is that many legislators and the public look upon the medical profession as a band of sycophants, always boasting of their professional regard for one another, yet ever anxious to outdo each other, ever seeking protection, yet becoming the most violent and persistent of persecutors.

Is it strange, therefore, that sarcasm should now and then creep into our legislatures, such as, for instance, the bill introduced by a Missouri legislator, fixing the uniform rate of $1.00 for visits and fifty cents for office consultations? Other bills of a like strain have been presented, a recent one being an act to compel each physician to advertise in the local papers his name, age, years of practice and source of medical diploma. All this is medical legislation.

Every time a State legislature meets there is a pilgrimage of doctors to the State Capitol, asking that certain laws be enacted, the sum and substance of all being the lessening of competition and the exaltation of the few.

Some years ago the animus appeared directed towards the annihilation of quacks and impostors. Much good was accomplished, but the more the charlatans were persecuted, the more they prospered. And to-day, according to the provisions of the courts, the only restriction is "Thou shalt not lie." They may advertise what they will, so long as falsehood does not appear.

The people did not eventually look so kindly upon the efforts of the profession to efface quackery, not as has been so often represented, because of their desire to be humbugged, but because they knew there were two sides to every question, and because they felt certain that so notable an effect must have some deep-seated cause. Adding to this the great stampede of doctors for medical legislation, they arrived at the conclusion that doctors were perhaps actuated by selfish motives, just as much as by their interest in humanity, and they decided that opponents and prosecutors should not be made judges and executors. What was the result? We hear of the Board of Health being refused support year after year; in more than one case the board has been compelled to cease its prosecutions as a condition of its existence, and in one notable instance, the official member was compelled to resign in order that an appropriation might be made.

THE THREE-COURSE REQUIREMENT.

The contest for a three-course qualification is far more in opposition to democratic principles than what has just been mentioned. The *raison d'etre* of its advocacy by the profession is evident. Shuddering at the laxness of its conditions it seeks to improve itself. Commendable indeed, for there are many doctors who do not deserve the title and whose knowledge of medicine is confined to exceedingly narrow limits. Many are graduates who attended two courses, some three courses, others perhaps still more. I, too, agree that this is due to the fact that two years of attendance at a medical college has been the standard of license. But, believe me, I consider this the fault of the whole system and not of the lack of a three-term requirement.

If these doctors, if all doctors would have been examined by a Board, the number of ignoramuses would have been immeasurably less, in fact, it would be *nil*. What assurance have we that the adoption of a three-years course will change the existing order of things? Will the fact that three years are required make the professors any better as teachers or the students any more faithful? Will it not encourage laxness on the part of the teachers and idleness on the part of students? It is indeed plausible to consider that many students will spend their time after the fashion of so many

of their continental co-workers, whose time and money wax so heavy on their hands that they spend the half in riotous life and dissipation.

Of course if the instruction is improved coincidently, and the examinations made more rigid and effective, in so far good will be accomplished. This is, however, by no means due to the lengthened course, but to the knowledge requirement which has been added.

THE KNOWLEDGE REQUIREMENT.

And here is just where I rest my oars, in the calm and righteous waters of knowledge. Knowledge the basis, knowledge the foundation, and knowledge the standard of qualification and excellence.

Make the two or three-course student pass a satisfactory examination before a competent board and you settle the question at once upon a basis both rational and just. No school's *ipse dixit* is taken; all submit to a fair and impartial test. Under this system a student who is a good chemist, on account of his academic education, needs not worry through two or three years of reiteration of what he already knows, and the capable druggist would be saved much time that otherwise he would squander in listening to lectures, useless to him. Equally would there be given to a nurse of experience or to one who has had much to do with invalids, the opportunity of deriving whatever benefits he deserves, and not be hampered by a time requirement, the same for tyros and for more experienced students.

With three courses a compulsory condition to graduation, a competent graduate of a good two-years school, whose professors have been conscientious, would be denied the right to practice and to exercise his hard-earned knowledge as he should, while the incompetent graduate of a three-term college of the most questionable reputation, would at once by the power and might of an unjust act, enter into the joys of the professional kingdom. Observe the whole system which should be an encouragement to industry and knowledge, by reason of the unnatural restriction of time, simmers down to an impalpable and foolish mixture of sentiment which is both unreal and ridiculous. Unreal because its basis is artificial and inefficient, and ridiculous because its application accomplishes but slight improvement at best, and that at the expense and hardship of injustice to the very men whose entrance into the profession is so desirable.

It is evident then that the three-term qualification places us no nearer the goal of our efforts than we are at present, for under its action, as now, the whole matter of licensing practitioners would rest in the hands of the professors of medical colleges—interested parties,—and not vested, as it should be, in the divine right of the people, in a board whose standard is knowledge and fairness to all.

Yet so long have doctors advocated the deification of time in this particular that what should be the foundation of medical legislation is overlooked, yea ignored, in the fetich worship of the time god.

This appears the more astonishing from the fact that the knowledge requirement is such a taking argument with legislators and men whose work and study is law-making. In the recent consideration, before the Missouri legislature, of the three-course measure, the bill was lost not, as has been falsely represented, by personal influence, but because the senators saw the fallacy of considering time and not knowledge as the proper requirement.

To say that every medical student shall attend for three years a medical college is to minimize the difference which exists between intellects and to deprive many a competent man from enjoying on account of a few paltry dollars, the fruits of his industry and knowledge, thus defeating the purpose and sense of all law.

I believe in trusts of no kind, and I most decidedly enter a protest against what is nilly-willy a medical students' trust. Any combination having for its avowed purpose a limitation based upon a standard which is unjust, which dictates unfairly and summarily, and which excludes deserving individuals from the enjoyment of such rights which by virtue of their knowledge they should have—when such a combination exists by agreement it must answer to the name of trust. As such it is detrimental to our country's interests and is in direct opposition to the old sterling principles of our government, that each man should receive fair treatment by the laws and that justice be given in accordance with each man's deserts.

FOREIGN DOCTORS.

Much has been said of the superiority of the European doctors over the American production, a statement whose deprecation is accompanied by the information that the fault is in the two-years' course. Again I beg to take issue for the palpable reason that the rigid examinations to which each student is subjected furnish proof which no argument as to time can belittle.

In Germany two examinations are held, the University and the State, each being independent of the other. It might be interesting to mention the number of rejections by the Prussian State Examiners of those who had already passed the University Examiners. In the year 1890 out of 563 applicants, 231, or 29.09, per cent. failed. Forty per cent. of the applying graduates of the University of Berlin were rejected. Where is the efficiency of the long term school compared with a good examining board? Certainly there is much valid argument in this little statement of the Prussian examinations.

In France the whole matter is left to the six Medical Faculties who constitute virtually six examining boards and who alone are authorized to issue diplomas to students of all the French schools.

In England, while the diploma issued by the University Faculties (in themselves almost equivalent to an impartial examining board) carries with it a licensing power, the various royal colleges make examinations granting to the successful applicant what is distinctive evidence of the knowledge he has acquired.

Austria and Russia have laws similar to Germany and hence present a proper solution to the question.

These illustrations are given to indicate as clearly as possible that the circumstance of the high intellectual standing of European physicians depends upon the constitution of what is equivalent to examining boards, and upon the strictness of the examinations, rather than upon the number of days, hours and minutes devoted to medical study.

It is a very serious question whether or not the unamerican legislation based upon a time requirement and excluding all who do not comply with its provisions is constitutional. Certain it is that the recent resolutions of the various boards of health which define the term "College in good standing" to signify a three-term school will not hold in any Court in the land. Efforts on the part of boards of health, such as has just been indicated, are valueless as they are misdirected. Any college which fulfils the significance of the term "College in good standing" at the time of the passage of the Act, can by mandamus compel the board to grant licenses to its graduates.

A more rational definition of the term, the boards might adopt, to-wit: Such colleges, all of whose students are able to pass a satisfactory examination before the boards of health. It does seem to me that this would be equally as legal and far more satisfactory and just.

OBJECTIONS TO A THREE-COURSE REQUIREMENT.

1. It possesses an erroneous basis, viz.: the standard of time and not of knowledge.

2. It is unfair in that it takes no cognizance of the superior intellectuality and industry of students.

3. It allows no credit for previous work and study, no matter how extensive, unless pursued regularly in a recognized medical school.

4. It is unjust because it works hardship upon deserving young men who happen to be poor in worldly goods; the rich are thus given the advantage and preference.

5. It perhaps would encourage laxness of teachers and indifference of students.

6. The ends would not be accomplished because second class colleges would exist under its enforcement just as well as now and they would be equally well patronized.

ADVANTAGES OF THE EXAMINING BOARD.

1. It possesses a just and rational basis, that of knowledge.

2. Every student would perforce depend upon his own efforts and zeal, and would not be indifferent of his studies unless he was not anxious to practice.

3. It is impartial—the rich have no advantage over the poor.

4. The licensing power being taken away from the medical colleges, their instruction, by the sheer force of competition, would be the drawing card for students would go where they could most easily graduate.

5. Second class colleges (and by this I mean those characterized by loose management and incompetent instruction) would be forced out of existence, because so many of their graduates would be rejected by the various State boards.

In conclusion let me restate a remark that I have already made, to the effect that it will be easy to convince the legislators of the wisdom of this measure; it is so thoroughly in keeping with fairness and right that to the law-makers it so smacks of the very essence of all law, that they advocate it in preference to all other measures.

Then let the right prevail; relieve the boards of health of the annoying duty as censors of the medical profession, and dictators of medical colleges; let the State's money be expended not for the compilation of statistics, their publication and circulation, of value to the doctors alone, but for the prime object of such a board—the hygiene of the State; let the impartial board of examiners pass on every new graduate who seeks the privilege of practicing in the State.

In such a commonwealth, the law of medicine be the law of fairness, democracy and right, and the licensed doctor will lie more comfortably on the bed of roses, nurtured by his own industry, and the incompetent one will seek some more congenial occupation.

Three results will obtain:

1. An ever increasing number of good, competent and worthy doctors.

2. An ever decreasing number of unworthy, unprofessional and incompetent physicians.

3. Medical colleges upon a higher, better and more intelligent plane.

Grand and Page Ave.

INCREASE IN THE USE OF ALCOHOLICS IN FRANCE.—From late returns it is found that the consumption of alcohol in France is largely increasing, and this despite the fact of the decrease in population. Can it be shown that there is a relation between these two processes?

ETIOLOGY OF ALCOHOLIC INEBRIETY.

Read before the American Association for the Study and Cure of Inebriety, April 11, 1891.

BY L. D. MASON, M.D.,

CONSULTING PHYSICIAN INEBRIATES' HOME, FORT HAMILTON, L. I.

The causes of alcoholic inebriety may be divided into *predisposing* and *exciting*, and the latter into two forms, *direct* and *indirect*. Inebriety from either of these latter subdivisions may be comprehended under one term, "acquired" inebriety—in contradistinction to those forms of inebriety directly traceable to heredity. This term "acquired" we shall apply to the form of inebriety due to "accidental" causes.

In the great majority of cases inebriety is not voluntarily acquired in the same sense that a person deliberately and as a matter of choice "makes himself an inebriate" so to speak, we use the term acquired, therefore, as we would apply it to other diseased conditions, not necessarily by its use implying a "moral delinquency." The *predisposing* cause of inebriety is latent and has to be called out by some exciting cause, either direct or indirect, usually of a *slighter* nature than would develop an "acquired inebriety."

Heredity is the great underlying or *predisposing cause* of alcoholic inebriety, in the same sense that heredity is the predisposing cause to many diseased conditions—as insanity, phthisis, gout, etc., constituting a diathesis or tendency to special diseases. We can with perfect propriety use the term "inebriate diathesis." We can trace "the pedigree of disease," as Jonathan Hutchinson calls it, in inebriety as in other forms of disease. Dr. Elam affirms that the offspring of the drunkard will inherit either the original vice or some of its countless protean forms. Plutarch, in his essay on "Delays of Divine Justice," asserts this fact; likewise Aristotle and Plato. "The fathers have eaten *sour* grapes, and the children's teeth are set on edge," writes the Hebrew prophet, and amid the thunders of Mount Sinai the finger of God wrote on tables of stone, "the sins of the father shall be visited upon the children."

Dr. Norman Kerr regards *maternal inebriety* as the chief hereditary cause of inebriety. Statistics show that female inebriates are much more common in Great Britain than with us—in Wales convicted inebriate females to convicted inebriate males stood as 3 to 1, while in the upper classes of English society it is well known that inebriety among females is greater than in America. My own observations trace the hereditary cause in the majority of our cases to an inebriate father.

Herediié croisé, or cross heredity, has been noticed in inherited inebriety—that is inebriate mothers gave rise to inebriate sons; inebriate fathers to inebriate daughters. Giron states that the hunters have a proverb, "*chienne et chien—chienne et chien*"—the mother's qualities in the son, the father's in the daughter. Buffon recognizes that fact, also; personally I have not any observations to give on this point.

Atavism has been observed; that is, where the inebriate tendency or diathesis escaped the second generation and appeared in the third—the grandparents being the transgressors. We notice this fact in other diseases, as consumption, etc.

This is the sequence that is established should an inebriate mother conceive:

1. The fœtus may die *in utero*. Miscarriage is a common condition in chronic alcoholism in pregnant women.

2. Should the fœtus survive, pass to full term, and a living child be delivered, it may be an idiot or congenital imbecile.

3. Escaping from these conditions, and manifesting a fair amount of intelligence, the child, at or about puberty or earlier, may develop one of the various neuroses—chorea, paralysis, epilepsy, etc.

4. Passing from youth to manhood without any of these manifestations, then suddenly, oftentimes from slight exciting causes, inebriety, or insanity, stand out in bold relief, and the hand of fate, shall we call it? draws the curtain on a life that has struggled from birth with an "inebriate diathesis."

Surely no class of persons in this wide world have a more marked claim on our aid and sympathy than these "*miserables*." Impotent to help themselves; lacking entirely that necessary self-restraint and control that belongs to a healthy, normal constitution. The so-called moderate drinker—we define such a one as a person who drinks habitually every day, so as to keep himself moderately stimulated, and his blood and fluids moderately alcoholized, but is never drunk, never loses his self-control, and is eminently respectable in the general sense of that term. Such a man we assert may be the originator of a long line of inebriates, insane or neurotic individuals. It is a common impression that the bloated drunkard and the debauchee alone gave being to such a progeny, yet so potent, so far-reaching are the effects of alcohol if continuously used with so-called moderation, that who shall say in what quantity it may be used safely, habitually, so as not to affect cell growth in our own organism, and dwarf and degenerate it tenfold in the being whom we may beget. The modified cell in our own organism being much more modified in our progeny.

Dr. Baer, of Berlin, says:

"The extremely delicately organized, very sensitive and easily destroyed construction of the nerve and ganglion cells presupposes for the normal physiological function of this structure the completest integrity of this apparatus, not only anatomically, but also physio-chemically. *Every, even the smallest, inroad* on the nutritive and formative processes produces here a reaction of incomparably graver significance and weightier results than on any bodily tissue."

Dr. Baer refers to the brain particularly, for upon the brain and nervous system alcohol produces its most marked (probably functional) changes, and slight changes in cerebral or nerve tissue mean a great deal more than similar changes in other tissues or organs. We do not feel that we are making an extravagant statement when we say that these slight cerebral and nerve changes may occur in the progeny of so-called moderate habitual users of alcoholic liquors. If so, here is the "initial lesion," the starting point of the long line of inebriates and insane with which this world is cursed.

"Total abstinence" is the safest remedy for this evil, and until it is universally practiced the production of idiots, imbeciles, insane, and neurotic individuals will not cease. But, it may be asserted that the so-called moderate habitual user of alcoholic liquors will not be answerable for "this train of consequences" if he does not exceed his "physiological quantity." Will any one state what is that safe or "physiological quantity?" We shall certainly lay this waif of hereditary inebriety, insanity, and kindred evils at the door of the so-called moderate habitual user of alcoholic liquors.

But it may be added there are cerebral changes produced by causes other than alcoholic; very well, eliminate from the etiology of cerebral disease one of the most potent of these causes—the habitual use of alcohol in any quantity. Not only inebriety or insanity in ancestry, but all hereditary diseases that tend to weaken the nervous system or give rise to a so-called "*congenital neurasthenia*" are the fertile soil from which inebriety may spring. How many persons born with "a tendency to diseased cravings and paralyzed control," as Dr. Clouston aptly styles it, cannot resist the ordinary shocks of life, readily yield to the seductive influence of some narcotic, alcohol, opium, chloral, cocaine, and become veritable narco-maniacs! What a birthright!

The question naturally arises, must all born with such a diathesis succumb eventually to inebriety or insanity in some form? We are not prepared fully to answer this question. There are in every community those who are aware of their being possessors of this unfortunate tendency. There are also those who inherit a consumptive diathesis. Instances are on record in which those having a consumptive diathesis have, by selecting their environments, as to climate, occupation and habits of life, successfully warded off the inroads of special disease. May it not be that a person who inherits the inebriate diathesis may also escape the usual results of the same in his own person by observing certain rules, regulations and habits of life? Children born of parents who have not yet become inebriates escape, while children born after parents have become inebriates inherit the inebriate tendency. Children who inherit the mental or physical traits of either inebriate parent are apt to inherit the inebriate tendency, while other children in the same family escape it.

Moral causes are written down as the chief prevalent causes of insanity proper, second only, in productiveness, to alcoholism. How often, as we have stated, do these congenital neurasthenics, these unfortunates born with a diathesis either inebriate or insane, yield to grief, strong mental emotions, loss of friends or estate, and become either inebriates or insane, when such causes would have produced neither result in a healthy, nervous organization. There are other causes, to which we think the term *accidental* might also be properly applied, and where we generally use the term "acquired inebriety," with which predisposing causes have nothing to do, and where we might with propriety say: "Neither did this man sin nor his parents." Whether inherited or acquired; inebriety is produced by certain exciting causes which may act directly or indirectly upon the nervous system.

Direct causes are those that operate directly upon the cerebro-spinal axis, more especially the cerebrum, viz., sunstroke, head injuries, including concussion and fractures of the skull, cerebral syphilis, and brain tumors.

Moral causes producing more or less mental shock act through the different nerves on the great nerve centres, leaving behind them a profound cerebral disturbance that has as its outward manifestation insanity, or inebriety, or some other form of narcomania. Other causes act indirectly by *peripheral irritation* through the afferent nerves on the central nervous system. Such are painful ulcers, dysmenorrhœa, urethral stricture, chronic neuralgias, chronic painful diseases of any nature; tænia solium has been known to cause inebriety, when relieved of the cause the patient recovered.

Any cachexia that debilitates the nervous system, or that may result in neurotic changes, must be classed among the causes of "acquired inebriety." Chronic malarial poisoning, syphilis, etc., are among these.

Neurasthenia, or nerve exhaustion from underfeeding and over-work, especially if combined with mental anxiety, is a fertile source of inebriety or insanity. *Moral causes* produce this condition usually before plunging the patient into one or the other of these conditions. Certain employments, by their unsanitary surroundings, may produce the tendencies that lead to inebriety. The explanation for the reason that any condition producing unrest, insomnia, pain, mental worry, or mental and physical exhaustion, causing the subject of these conditions to turn to alcohol for relief from exhaustion, insomnia, or pain is found in the fact that *alcohol* is a *stimulant*, an *hypnotic*, an *anæsthetic*, a triple capacity; hence the neurasthenic from any causes flies to it for relief. The

victim of dyspepsia and mal-assimilation, for faintness, and sinking sensations, etc.

The one who cannot sleep finds, especially if the cause of insomnia is mental worry, that *alcohol* is to him a true hypnotic. As an *anæsthetic*, alcohol is very pronounced, and in degree will relieve pain as much as opium, chloroform, or ether. The older surgeons recognized this fact, and before the days of modern anæsthesia alcohol was used for this purpose. The laity have found out long since this peculiar quality of alcohol, and many victims of pain have sought relief in its anæsthetic effects.

The great lesson that all those who attempt to cure the inebriate is that his inebriety has a *cause*, that the inebriety itself is only a symptom of a nascent condition—as some one has said "neuralgia is the cry of a diseased nerve," so inebriety is the cry of a diseased nervous system, produced by causes acting directly or indirectly upon it. "*Tolle Causam*," the motto of every practitioner in dealing with all forms of disease, should also be the motto of every specialist on inebriety. A careful analysis of the cases of inebriety presented to us would show that there are many cases directly traceable to causes or diseased conditions that can be removed, and upon which the inebriety depends. It is the duty of every specialist on inebriety, every physician who would deal successfully with such cases, to trace out and eradicate the cause of the disorder. We cannot remove the cause in all cases; we cannot eradicate hereditary tendencies or certain lesions of tissue resulting from disease or injury; but, in many instances, we can relieve the patient of a painful or exhausting disease and thus cure his inebriety or other form of narco-mania.

MEDICAL CASES IN THE COURTS.

BY HENRY A. RILEY, ESQ.,
OF NEW YORK.

THE DANGERS OF FOREIGN IMMIGRATION.

The steamship companies are making a hard fight to avoid the penalties imposed for violations of the recent law passed by Congress against undesirable immigration. The United States officials have refused to allow a considerable number of pauper and vicious immigrants to land, and the agents of the steamship companies claim that it is a hardship to be obliged to care for them until they can be sent back. The conclusive answer of the Government is that the law is clear on the subject, and the companies should not have brought the unhealthy, insane, vicious and pauper immigrants whom it is desired to shut out. If they are brought, any expense connected with their return must be paid by the steamship companies. The figures of immigration are somewhat startling, and the arrivals from countries where the immigrants are of the most undesirable classes show the largest totals.

The countries of Southern Europe are now outstripping Great Britain and Germany in the number of arrivals. During 1890, 40,883 persons arrived from Russia, 29,994 from Hungary, 62,492 from Italy, and 19,737 from Poland. It would be one of the alleviating circumstances of the disgraceful massacre at New Orleans if it checked in whole or in part the present inundation of Italian immigrants. There is hardly any problem connected with the duties of Health Boards which is so serious and so perplexing as how to deal with the insane and sick foreigners who crowd the steerages of the ocean steamships. It seems difficult to devise a practicable scheme for inspection in foreign ports, and it will perhaps only be a heavy pecuniary loss which will teach the steamship companies to exercise some supervision themselves. It is proposed, among other things, to photograph all rejected immigrants, so as to see that they do not slip in at some later time.

COSMETICS AND SPECTACLES IN COURT.

There have been various attempts in New York to convict of illegally practicing medicine a famous dealer in cosmetics, face washes, etc., whose advertisements, consisting mainly of his own face, are to be found in journals all over the country, but his business seems to go on thrivingly. It is somewhat difficult to distinguish clearly where the line between business and professional dealings lies in such cases, but we think it would be a wise stroke of policy if the aforesaid face washer were to become the *bona fide* holder of a medical diploma by a conscientious course of study at some reputable medical school.

In this connection it may be noted that the optician holds a somewhat doubtful position in regard to the practice of medicine. If he furnishes a customer glasses to cure errors in sight, does he practice medicine so as to run counter to the law requiring the possession of a license? If he investigates the troubles of the eye, determines the errors in refraction and prescribes a combination of lenses such as will remedy the affection, has he crossed the line which makes him an offender in the eye of the law? The French courts have recently held to the narrow, technical theory, and have decided that it is illegal for an optician to give pathological information on the state of the eyesight and to prescribe for any visual trouble a combination of lenses. The optician may be a physiologist, but cannot do anything to remedy the troubles he discovers. It is not unlikely that a broader principle of legal construction would be adopted in this country if the question arises, as it may at any time, concerning the status of opticians.

STEAMBOATS AND CEMETERY VAULTS ARE NOT BUILDINGS.

A New York court holds that where the Civil Damage Law forbids the selling of liquor under certain circumstances in a "building or premises," it does not apply to a steamboat where liquor is sold. The learned judge likened the steamboat to a vault in a cemetery, which he said was not a "building" in the sense meant by the statute against burglary, although it might be above ground.

PIGEON SHOOTING IS NOT CRUEL IN PENNSYLVANIA.

A Pennsylvania statute provides that any person who shall wantonly or cruelly ill-treat, overload, beat or otherwise abuse any animal shall be deemed guilty of a misdemeanor, but the Supreme Court has just held that this does not apply to a member of a gun club who, at a pigeon shooting match, shoots at and wounds a pigeon set loose from a trap, if it is immediately killed when its wounded condition is made known. The Court said:

From the facts found by the jury, the defendant has merely been punished for want of skill. It is doubtless true that much pain and suffering is often caused to different kinds of game by the unskilfulness of sportsmen. A squirrel badly wounded, may yet crawl to its hole and suffer for many hours or days and die. So with birds. They are often badly wounded and yet manage to get away only to suffer. It was not pretended that the Act applied to such cases. The sportsman in the woods is not responsible for the accuracy of his aim under the Act of 1869. At the same time it is manifest that much suffering would be spared wild game if sportsmen were better trained. Skill in shooting upon the wing can only be gained by practice. It is not so with inanimate objects. There accuracy of aim can be acquired by shooting at a mark. It is conceded that the sportsman in the woods may test his skill by shooting at wild birds. Why then may he not do the same with a bird confined in a cage and let out for that purpose? Is the bird in the cage any better or has it any higher rights than the bird in the woods? Both were placed here by the Almighty for the use of man.

In accordance with this reasoning a conviction in the trial court was set aside.

MEDICAL PROGRESS.

Therapeutics and Pharmacology.

THE TREATMENT OF TYPHLITIS.—In the earliest stage, absolute rest in bed, entirely liquid food, and a sedative mixture are necessities. I have generally used the liquor opii sedativus (B. P.), and occasionally joined with it some tincture of belladonna; nepenthe has also proved very valuable on two or three occasions. If the pain be *very* severe, a hypodermic injection of morphine will relieve it for a time, and I have found it disappear "for good" after one injection. A mustard-leaf may be applied to the seat of the pain, and followed up by a linseed poultice every two hours, or a hot fermentation or spongiopilin if the poultice be too heavy. A few drops of brandy or other spirit sprinkled on the flannel on the side which will touch the skin often takes away pain successfully. It is well in two or three days' time to administer a fair-sized enema of soap and water, and unless the bowels are moved of themselves, this had better be repeated daily. With ordinary care it is quite harmless; it removes whatever may be in the sigmoid flexure, and it stimulates the colon to get rid of its contents, thus probably helping to empty the cæcum and withdrawing the cause of the inflammation. If the vomiting is troublesome, an effervescing mixture with hydrocyanic acid or small doses of lime-water, will be useful. For diet, a little broth, or beef-tea, or arrow-root, or Benger's food, given every two hours in two or three ounce doses will suffice. Milk I regard as not very good food in these cases; unless it be freely diluted with soda-water or lime-water, it is too apt to become a mass of hard curds in the stomach, which may prove very irritating to the inflamed bowel. With the cessation of pain, the lessening of the lump in the groin, and the general improvement in the patient, of course an improved diet and some changes in the medicine become needful. Bismuth, I have generally found to be serviceable in the later stage going on to convalescence. With the surgical varieties into which typhlitis may stray, I will not deal here, as I have no personal experience of them, nor will I touch on that debated question, removal of the appendix. —*Archives of Pediatrics.*

THE EFFECT OF CERTAIN DRUGS ON THE RENAL CIRCULATION.—DR. ALBANESE has published in an Italian journal some important researches on the effects of caffeine, chloral, and curare on the circulation in the kidney, by which he has been led to the conclusion that the amount of urine secreted is not directly proportional to the quantity of blood passing through the organ. When chloral alone was given there was a very marked increase in the volume of the kidney, though, as is well known, this drug has an exceedingly slight diuretic action; while curare, which has a marked diuretic action, was shown to cause no perceptible increase in the volume. When caffeine was introduced into an animal already under the influence of either chloral or curare, it immediately caused a decided increase in the size of the kidney, and at the same time induced marked diuresis. Nevertheless, the increase in size produced under these conditions was not enough to account for the large quantity of urine secreted. Dr. Albanese does not agree with Schroeder that caffeine contracts the renal vessels, but finds that its action is first to increase slightly the volume of the organ and then to

cause a slight dilatation of the vessels. As there appears to be no indication that the diuretic action of drugs is due to increase in circulation or in volume, he is inclined to refer it to some change effected in the renal epithelium.

THE TREATMENT OF IRRITABLE BLADDER.—The best internal medication is iodide of potassium in from ten to thirty grain doses every few hours with large quantities of hot, soft water. This often in the incipient stage will effect a cure in a few days and will give relief in a few minutes. The decoction of the triticum repens which has been so highly praised by some, I have been much disappointed in, as it has appeared to me to do nothing more than act as a diuretic. Tincture of belladonna in some cases is of benefit but cannot be relied upon. Keep the body warm; warm baths with shampooing is of great benefit. Some cases that in the early stages were particularly intractable have been cured by a few weeks' residence at Excelsior Springs, with a liberal use of those iron-manganese waters. Probably they change the nutritive processes that are always at fault, and at the same time wash out the bladder thoroughly by their diuretic action. Relapses are liable to occur, hence great care should be used both as to diet and hygiene, and the first symptoms of relapse promptly treated.—HALLEY, *Kansas City Medical Record.*

POMADE FOR ALOPECIA.—MONIN (*L' Union Médicale*, March 3, 1891), recommends a pomade composed of gallic acid 3 grams, castor oil 20 grams, white vaseline 40 grams, spirits of lavender 15 drops. To be thoroughly rubbed into the scalp night and morning.

CHOREA.—The physician is often at his wits' end to find some efficient remedy for chorea. Tilden claimed to have obtained great benefit by throwing a spray of ether for five or ten minutes along the spine, at the same time keeping up nerve nutrition by appropriate food and exercise. Clark, surgeon-in-chief of the police department in Newark, N. J., reported some time since in the *Times* an exceedingly aggravated case of chorea treated with entire success by antipyrin. Acting upon the hint, we have recently controlled in children from 5 to 10 years of age serious forms of chorea with 5-gr. doses of antipyrin, at first every four hours, and, as the condition improved, three times a day. Very likely there are conditions of the system which would prevent the curative action of the drug, but in these cases it was certainly very effective, acting as a positive curative agent. That this drug is something more than an antipyretic and antispasmodic is seen in its action in renal spasm, the result of calculi, in which it not only controls the spasms but, continued in 5-gr. doses for several days, causes the uric acid and the sand to disappear from the urine.—*N. Y. Med. Times.*

Medicine.

EHRLICH'S TEST IN TYPHOID FEVER.—C. E. SIMON (*Johns Hopkins Hosp. Bull.*, 1890, 93) refers to the nature of the diazo compounds, and their tendency to enter into combination with aromatic bodies, and cites the first experiments of Ehrlich while endeavoring to discover some of these aromatic bodies in the urine. Owing to the controversy which arose regarding the diazo reaction, especially as to its diagnostic import in typhoid fever, the test has come to be regarded by many as a medical curiosity of no clinical value whatever. The author, however, is convinced by his experience that the original work done by Ehrlich is not appreciated, since his own results fully coincide with those which Ehrlich obtained. After explaining the chemical nature of the reaction as far as it is understood, and the methods which Ehrlich advocated, he details the modification which he has found most convenient as well as most delicate. Two solutions are made, one of 50 cc. of hydrochloric acid in 9,950 cc. of water, and this saturated with sulphanilic acid; the other of a ½ per cent. solution of sodium nitrite. To make the test, 40 cc. of the first solution is thoroughly agitated with 1 cc. of the second. A few cc. of this is next thoroughly shaken in a test-tube with an equal quantity of urine. One cc. of ammonia is now allowed to run down the side of the test-tube, forming a colorless zone above the mixture, and at the juncture of the two a more or less deeply colored ring will be seen, the slightest carmine tint—the characteristic of the diazo reaction—being made out by contrast with the colorless layer above and the yellow urine below. Various plays of color may appear in different urines, but in that of typhoid fever there is produced a red coloration, which may vary from an eosin to a deep garnet. Simon has examined the urine of almost every disease which has occurred in the wards of Johns Hopkins Hospital, but has observed the reaction only in cases of typhoid fever and phthisis pulmonalis. He has had no opportunity of searching for it in cases of contagious fevers, in which Ehrlich has occasionally found it present.

The report now made is based upon observations in thirty-six cases of typhoid fever, and the details of the examinations of these are given. The results which he obtained lead him to conclude that, with the methods of examination given by Ehrlich, the reaction may be obtained without difficulty in typhoid fever from the fifth to the thirteenth day of the disease, and that with his own modification it may still be seen as late as the twenty-second day. Its absence from the fifth to the ninth day indicates a very mild case, excepting in children, although this rule is prob-

ably not an absolute one. As it occurs previously to the appearance of the rash, it is a very useful aid in the diagnosis in typhoid fever.—*American Journal Med. Sciences.*

CATARRH TREATED BY PEROXIDE OF HYDROGEN AND ARISTOL.—The *Pharmaceutical Era*, March, has a note by the editor to the effect that aristol, dissolved in the lighter petrolatum products, has helped him in a considerable number of difficult cases of naso-pharyngeal catarrh. The proportion of the aristol used has not exceeded 10 grs. to the ounce. He begins the treatment by using hydrogen peroxide, in a weak solution, by means of an atomizer. This as a preliminary cleansing measure is beneficial. It is to be followed with the aristol solution as a spray, by which the affected parts are protected as by an antiseptic oily covering. Aristol is harmless in the strength above indicated, and it may safely be prescribed to the patient for home use. The results of this treatment have been the re-establishment of a healthy mucous membrane and a reduction of the catarrhal flow. The cleansing power of the peroxide is admitted on every hand, and favors the more thorough action of drugs than if they are immediately applied.

Surgery.

INDICATIONS FOR TREPHINING THE MASTOID PROCESS.—DR. SCHWARZE (*Deutsche militärärztl. Zeitschrift*, Heft vii, 1890) gives the following indications for opening up the cells of the mastoid process: 1. In recent inflammation of this process with retention of pus in its cells, when the local application of ice and superficial incision have failed to reduce the swelling, pain and fever. 2. In cases of secondary inflammation of the mastoid process, the external meatus should in the first place be emptied of any retained pus If in adult patients this treatment, together with the application of ice, fail after a week's trial, recourse should be taken to operative treatment. 3. The mastoid process should be trephined in cases of chronic suppuration with repeated swelling, superficial abscess, or fistula, and spreading of the pus to the neck, external meatus, or pharynx, even when there are no apparent symptoms indicative of immediate danger. 4. The mastoid process, even when healthy at its surface, should be opened up in cases of retained pus and cholesteatoma, on the first appearance of symptoms pointing to dangerous complications in the middle ear. 5. The operation should be performed for the prevention of fatal consequences in cases of incurable foul suppuration in the middle ear, although no other symptom may present itself save a persistent ill odor.—*Brit. Med. Journal.*

Bacteriology.

THE ALKALOID OBTAINED FROM THE TUBERCLE BACILLUS.—Great interest is naturally attached to the various experiments which have been made in regard to the pathological chemistry of the tubercle bacillus. Although we are now in possession of a pretty full knowledge of the mode of action of the products of the tubercle bacilli as exhibited by the recent experiments made in all parts of the world with tuberculin, we as yet know comparatively little of the chemistry of this substance. An alkaloid was obtained from the products of the anthrax bacilli by Dr. Sidney Martin, and PROFESSOR ZUELZER has succeeded in obtaining a similar body from the bacillus of tuberculosis. A short account of Zuelzer's mode of isolating the alkaloid is given in the *Wiener Medicinishe Wochenschrift*, No. 10, 1891. The entire contents of the tubes in which the pure cultures were made were repeatedly treated with hot water acidulated with hydrochloric acid. The solution was filtered, evaporated, and then several times precipitated with platinum chloride; the double salt decomposed by sulphuretted hydrogen, and the liquid again filtered and evaporated to dryness. In this way an almost white crystalline salt was obtained, which was easily soluble in hot water, but with great difficulty in cold. Its solution was light yellow in color. Ater keeping it for some time the dry salt assumed a light brown color. The chloride when injected into rabbits and guinea pigs exhibited a characteristic toxic action; about one centigram injected subcutaneously produced after from three to five minutes an increase in the frequency of respiration, the movements reaching 180 per minute. This continued for about a quarter of an hour, when the rate gradually became slower. The temperature rose in two out of the ten observations from normal to 102.2° F. Another constant symptom was well-marked protrusion of the eyes, which also appeared bright and shining, with somewhat dilated pupils. The sclerotic was considerably injected. It was remarkable that the protrusion of the eye was more marked on the side on which the injection had been made than on the other. All these appearances disappeared in from fifteen to twenty minutes. Toxic symptoms only showed themselves in three rabbits, and these had received somewhat larger doses, between two and three centigrams having been administered. Death usually occurred somewhere between the second and fourth days. At the site of injections there was considerable redness, and small hæmorrhages were found in the muscles immediately beneath. Small effusions of blood were also found in the mucous membrane of the stomach and small intestine. In two cases effusion occurred into the abdominal cavity. The brain was, as a rule, soft and congested. Almost precisely similar results followed the injection of the alkaloid into the conjunctiva.—*The Lancet.*

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.

Subscription may begin at any time. The safest mode of remittance is by postal or express money order, drawn to the order of THE JOURNAL. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE.,
CHICAGO, ILLINOIS.

All members of the Association should send their Annual *Dues* to the *Treasurer*, Richard J. Dunglison, M.D., Lock Box 1274, Philadelphia, Pa.

LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, MAY 2, 1891.

MEDICAL LITERATURE AND PHILOSOPHY.

If there is one need in American medicine above another, it is literature—words that live. All our physicians are comparatively rich, and they occupy a position in the society of the communities in which they live, which is far above that occupied by the same class of men in European countries. We have not only a larger number of readers, but a larger number of men who may become writers. We are astonished, then, that so few examples of the philosopher are produced by our guild.

Certainly there is nothing inherent in medicine which tends to dwarf this manifestation of the human mind. The medical man has an opportunity to gain a deep insight into the soul, and to follow the trend of life in rare and hidden declivities and acclivities. His intelligent sympathy is called into constant and varied activity. He knows the pinch of poverty and the load of luxury. But the inexorable laws of nature are not less familiar to him, and he is trained to follow effect back to adequate cause. To him vice and crime are expressions of conduct which are analogous to the errors or ignorance for the effects of which his services are required. His experience is wide and his touch with man acute. Certainly such a training might well be coveted by a philosopher.

The occupation of the physician gives, then, the pabulum for thought. Does it furnish the motive? Of all pursuits, medicine is the most humane and benevolent. In the true physician's life there is a constant character-building. More than any other man he knows and feels the moral, mental and physical needs of his people, and he plans for their practical betterment. The betterment of his people is the betterment of all, philanthropy—the motive of philosophy.

But does the busy life of the doctor furnish opportunity for thought? That is as you choose. There are those who, for gain or ambition, fill their lives with petty cares and nothingnesses, who think of naught but the engagements of the moment from the time they are rung out of their beds in the morning, until, after dragging themselves home at midnight, they throw themselves undressed on anything that will serve as a couch, stupid, tired. There are those who fill their working hours with work to gain means to vie, in dress, in equipage and in display, with brokers, merchants and manufacturers. There are those who make their office and their profession an excuse for doing nothing else, and they follow their occupation in a perfunctory manner, as men in their dotage aimlessly sit at the desk where they once transacted business. For these there is no opportunity, as there is motive for thought. But the great majority of physicians, both in country and city, have leisure, and they should dedicate that leisure to philosophy. The amount of leisure may be increased by directing some calls and some cares to younger men.

If our profession furnishes character as well as motive and opportunity for thought, why are there so few thinkers in our ranks? It is because method is neglected. Logic and rhetoric are displaced by novelty or blazonry. It is because there is a sentiment, borrowed from the commercial world, that facts are more than thoughts. Hence our magazines and journals are full of experiments and clinical histories, the former often undertaken without logical limitation, and the latter recorded without rational deductions; both are ungarnished by rhetoric and unseasoned with wit.

In our medical schools no attention is given to the motive and method of medical philosophy. Our colleges are loosely connected with the university, where philosophy itself is taught, and the lyceum, even in this country, forms no part of medical education. However completely the class room instruction is given or the technique of the laboratory acquired, that is a poor equipment which the student carries away, that does not provide for subsequent medical culture.

The multiplicity of medical journals must not be looked upon as an unmitigated curse if their unvaried mediocrity enforces attention to the lack of medical philosophy. In the writer's opinion, there is not a medical author in the United States who has produced anything in the past five years which will last a lifetime. We have careful experimenters, brilliant operators, astute observers, accurate diagnosticians and successful therapeutists, but where are our teachers? The material of our clinics is only partially utilized. Our laboratories, surpassing in equipment those of Europe, are not heard from, and our monographs and compilations are dull, crude tokens of the literary taste and criticism of our profession.

The remedy is not far to seek. The student should be admitted to the study of medicine only after adequate preliminary training. The study of medical literature and philosophy should be made a part of every graduating course, and should occupy a large place in post-graduate education. Special attention should be given authors who write worthy papers, and a few words of encouragement and thanks should be sent by every reader to the author of a paper which has afforded him pleasure and instruction. Those journals only should be patronized that maintain in their columns a respectable standard of literary excellence. In our State and National gatherings those papers should be presented that, other things equal, are clothed in the most becoming garb.

THE DANGERS OF TUBERCULIN.

These have been overstated by some with the same precipitous spirit which others have displayed in their anticipation of its power for good. In the many control observations tuberculin has not been found to injure any non-tubercular person beyond the inconvenience of the febrile reaction. In tubercular subjects, however, the reaction may be alarming in severity and lead to delirium, coma, angina pectoris (Jacobi) collapse and even death. At least one death (Janisch of Innsbruck) has thus been caused by acute tuberculin-poisoning. This danger is more or less in proportion to the intensity of the reaction and it is now universally conceded, that by sufficient caution in beginning with minute quantities and increasing only slowly in dose, such acute dangers can be avoided with certainty. But apart from the possibility of acute poisoning, other accidents have been observed. The local reaction consists in intense congestion around the tubercular focus, effusion of serum and more or less migration of leucocytes, in short a disturbance verging towards or even identical with severe inflammatory swelling. Under certain conditions such a reaction may prove dangerous, if too intense. The fear that too much reaction in the larynx may necessitate tracheotomy in laryngeal tuberculosis has not been realized, since observers have learned to avoid the rash use of large doses. VIRCHOW has stated that at the autopsy of a child dead of tubercular meningitis he saw the most intense congestion of the meninges in consequence of the tuberculin treatment, that he had ever observed. Yet the few cases of tubercular meningitis in which the treatment was tried did not seem to suffer clinically and although none were saved they did not seem to run a more acute course than ordinarily. In the lungs, however, damage has evidently been done by tuberculin a number of times. VIRCHOW, his assistant HANSEMANN, and various others (Nauwerk) report the frequency of catarrhal pneumonia and of caseous pneumonia with rapid disintegration of lung tissue and even exceptionally phlegmonous infiltration of the lungs in subjects dying while under treatment with tuberculin. In fact, clinically an increased area of dulness and of crepitation can certainly be recognized in some phthisical patients undergoing treatment. Such occurrences evidently mean danger, especially to patients weakened by their previous disease. No doubt some deaths have been hastened by the use of the remedy, and in other instances, like that of GRASSET, life has even been destroyed, where without tuberculin it might have been maintained for a long period. But these unfortunate accidents are getting to be less numerous in the more recent reports, as observers gradually learn to use the substance with more discretion in the selection of the patients, and greater caution in the administration. Various specimens have also been exhibited in Berlin, especially by VIRCHOW, which show that intestinal tubercular ulcers may perforate into the peritoneal cavity, of course with fatal result.

Perhaps the gravest question raised by VIRCHOW and since discussed by many reporters, is the query: Can tuberculin cause a dissemination

of the pre-existing bacilli throughout the body and thus lead to fresh tubercular disease, or even miliary tuberculosis? Numerous clinical observations and autopsies have shown that miliary tuberculosis can occur in patients while undergoing the specific treatment. Of course attention is at present called to every such case, but testimony is yet wanting to prove that miliary tuberculosis is a more frequent complication in patients submitted to treatment with tuberculin than it used to be formerly. Hence it cannot be stated with certainty that a dissemination of the bacilli is produced by tuberculin. But on the other hand the possibility of such an occurrence can also not be denied. It sounds like a warning to hear HANSEMANN declare that within a few months he had dissected three subjects with eruption of miliary tubercles on the epicardial surface, when the records of the Berlin Pathological Institute showed this localization to have been seen only six times in the last ten years.

LIEBMANN claims to have found free tubercle bacilli in the blood of patients during the period of reaction to tuberculin in nine cases. Some of his specimens examined in Berlin by KOSSEL showed that this was due to a deception. The cover-glasses showed that they had been used for the examination of sputum and had been insufficiently cleansed. Various other experts confirmed this opinion. LIEBMANN indeed admitted its possibility, but claimed that in other instances he had also found the bacilli in the blood when no such error could have occurred. EWALD corroborated this so far as he could tell from the slides submitted to him. On the other hand, however, EWALD himself, EHRLICH, GUTTMANN, KOSSEL, PRIOR and others have examined the blood of numerous patients during the reaction with entirely negative results.

It has also been stated by WISSOKI, of Kasan, that the lymph itself contains occasionally tubercle bacilli. In answer to this allegation LIBBERTZ, the manufacturer of tuberculin, has replied that while a few bacilli may occasionally be found in the lymph, they are absolutely harmless because they are dead, since the mode of production guarantees the destruction of all living germs with infallible certainty, and the amount of glycerine in the lymph prevents the growth of any germs which might accidentally get into the flasks from the air.

Can the dangers be avoided by any precautions in the administration of tuberculin? The agent in question cannot be compared in its therapeutic effect with any other known remedy, and the rules guiding its administration have to be learned by empirical experience. It is not a substance which, if inefficacious, is at least harmless. An agent exercising such remarkable specific influence on the tubercular process, even in infinitesimal quantities, yet without directly killing the bacilli, is capable of doing harm in unsuitable cases. Its indications and technique require precision like those of any responsible operation.

It has been learned that tuberculin has hitherto been at least useless, if not harmful, in very extensive infiltration of the lungs, in pulmonary cavities (except when combined with surgical measures), and particularly in acute and progressive tuberculosis of the lungs (or any other internal organs) with continuous fever. Great reduction of strength is likewise an unfavorable condition for its action, since the tuberculin reaction, if at all marked, runs down the patient still further. Advanced cases of phthisis have not given sufficiently encouraging results to warrant its use as now employed, in view of the possible dangers.

All observers agree that intense reaction is not of sufficiently greater advantage to the patient than a milder influence of tuberculin to warrant the large doses with which many of the earlier observations were begun. Many authors state that they have found it best to reduce the quantity of the initial dose and the ratio of increase, as their experience became wider. The most extreme advice as to the dosage has just been given by GUTTMANN and EHRLICH, who have charge of the Berlin wards under KOCH'S personal supervision. In pulmonary or laryngeal disease they begin with one-tenth milligram increasing daily by one-tenth milligram more until the dose of one milligram is reached. Every second day an injection is now given two-tenths milligrams larger than the preceding one. After two to three milligrams have been tolerated the dose is augmented one-half milligram each time. Later on the quantity is more rapidly increased. Some patients showed thus favorable local reaction without any rise of temperature, except perhaps a few tenths of one degree, and without any discomfort. If any dose (sometimes less than 1 mg.)

causes a normal transient febrile reaction, the same dose is repeated every second day until it has lost its pyrogenic influence, whereupon an increased quantity is used. If a continued febrile state is produced, no injection is given until the temperature has become normal, whereupon a smaller quantity, one or even the initial one-tenth milligram may be made use of. Any continuous fever the observers regard as a contraindication to tuberculin. The therapeutic results obtained have not yet been published by GUTTMANN and EHRLICH. Until this is done by these authors or others following the same plan, the question whether tuberculin can cure tubercular disease without febrile reaction, cannot be answered definitely. Various accidental observations, especially one case by SENATOR, have taught that some patients who did not respond to the usual doses by general reaction, still were unmistakably benefited. LICHTHEIM has attempted to solve this problem by treating several cases of lupus with the precaution to avoid fever altogether by the use of minimal initial and very cautiously increased doses. He states that while the usual local reaction tending towards a cure of the easily observed patches of lupus was manifested, the patients did neither improve as fast, nor to the same extent as those treated with fewer but larger doses, and that the tolerance to tuberculin and consequent loss of its specific influence occurred before the lupus had healed entirely. He therefore considered a moderate general reaction as an advantage. Other observers have found that after tuberculin had ceased to produce any further local improvement, on account of the tolerance established, an interval of some days or weeks permitted the organism to react again. By adopting this plan RENVERS reports the cure of a case of extensive tuberculosis of the larynx.

THE FINANCES OF THE JOURNAL.

From what was recently suggested by us with reference to the propriety of making an appropriation for payment of the expenses for reporting the proceedings of the Sections, we find that some of our members anticipate that such an appropriation will at once be made, and that the Sections will be thus provided for at the coming session. Much as it may be desirable, such a provision cannot be made at once.

Experience has taught us over and over again that reporting by other than medical experts is *totally unsatisfactory*. Such experts can be obtained, but it will require time to organize such a corps and to adjust them to their Sections. And when the time for such reporting arrives each Section should be provided for and all should share alike.

It will be borne in mind that though the Association may desire to make appropriations, the decision of all such questions is vested in your Board of Trustees. This Board has always been eminently conservative in the handling of your funds, and it has always labored under the embarrassment of not knowing in any given year how much money it could safely appropriate. And this arises from the fact that they could never ascertain until near the close of the financial year how much would be paid in by the members as annual dues, and how much could be earned by THE JOURNAL. For this reason they have been extremely prudent, both with reference to the expenses of the publishing department and for editorial work as well. Under the working of this general policy THE JOURNAL has never owed a debt which it could not pay, and, having money in its treasury, is able to avail itself of the advantages in the market accorded to cash customers. We have learned from critical observation just what our publishing expenses will approximate from year to year, and as there is a steady increase in our annual receipts, we believe the time has come when by recommendation of a special committee to our Trustees, and with their approval, some special appropriations may safely be made which will greatly enhance the value and usefulness of THE JOURNAL. But it is idle to suppose that such appropriations will be made without due consideration or that they can be available for use at the coming session.

THE QUESTION OF REMOVAL.

To those who have so strenuously urged, that the discussion of the question of removing THE JOURNAL to Washington be terminated, and that its pages be devoted to the promotion of medical interests instead, we have simply this to say: By a vote of the Trustees, under whose direction THE JOURNAL is published, the members of the Association were invited to express their views

upon the subject of removal. In answer to that request communications have come to us from every section of the Union. We have felt it our duty to obey instructions, and just in the order in which they have been received these communications have been published. We write to say that with this issue of THE JOURNAL that discussion will be closed. It now remains for the Association to determine for itself, through its Trustees, where THE JOURNAL shall be published, and under what supervision.

THE JOURNAL has occupied no partisan ground in this discussion, though it has had occasion to suggest the modification of some articles which would have been deemed personal by those who strongly favor the removal. Such suggestions have been kindly received, and what might otherwise have led to unpleasant results has thus been averted. In no other way, and never except as stated, has THE JOURNAL sought in any manner to influence the writers who have engaged in this discussion.

EDITORIAL NOTES.

AN AMAZING CHARITABLE EXPENDITURE.—According to the Secretary of the Charity Organization Society of New York, 300 societies and agencies in that city spend $4,000,000 annually in charitable work.

THE NEW LANGENBECK-HAUS.—The foundation stone of the projected Langenbeck-Haus was laid in Berlin, by Professor Tirsch, on April 4th. This memorial to von Langenbeck is of the most enduring and highly practical kind. As its name might indicate it is not to be a hospital or invalid home, but rather a medical club house—a general meeting place containing lecture-room, library, reading-rooms, refreshment-rooms, etc. It appears that the idea originated with the late Empress Augusta, who gave much interest and attention to medical matters, and whose wisdom in this connection of von Langenbeck's memorial certainly is not to be gainsaid. The last day of the recent German Surgical Congress was set aside for the ceremonies attendant upon the corner stone placing, and the members of that body, together with State dignitaries and representatives of royalty, were present.

A SUGGESTION BEARING UPON TUBERULOSIS.—Dr. James Braithwaite, of Leeds, mentions (*Brit. Med. Jour.*, April 11, 1891) the possibility of curing tuberculosis by the destructive powers of other bacilli than those belonging to the tuberculous class. He believes the converse to this is true, viz., that a system thoroughly infected with the tubercle bacilli renders the action of other organisms more or less inert, and in favor of this view he gives the statement of a gravedigger, that those who have died of consumption and been accidentally exhumed two or three years after burial have an undecomposed appearance—are "like wax," while it is not so when death has resulted from other diseases.

"DRUMMING" DOCTORS.—The *Journal of the Arkansas State Medical Society* cries out fiercely—and very justly, indeed—against the unprincipled doctors who prey upon the unfortunate invalids at the Hot Springs. It is hoped the action of the last legislature will avail something in the way of renovation.

TRANSMISSIBILITY OF INFLUENZA.—In opposition to the theory that influenza is a disease not dependent upon personal contact of individuals for its progression, that it is not evolved by the intrinsical operations of a specific poison and propagated through and by means of the ordinary channels of human intercourse, may be mentioned that during the late epidemic observers have found that the course of influenza was independent of, and quite opposed to, the prevailing winds. It travelled slow in Siberia and Russia, but rapidly as soon as it reached the network of railways in Central and Western Europe. Its course was changed by the mountain ranges of Scandinavia, and it invaded Norway, not from Sweden, but from Holland and England. Again, it was deflected by the Carpathians, turning its course in the channels of travel down the valley of the Danube, and ultimately following, in direction and time, the ocean routes to Africa, India, Australia, and this country. In India it has shown the same peculiarities in following the railway lines as has been observed with us.

VENESECTION AGAIN.—J. G. Swayne, M. D., has a contribution in the last number of the *Bristol Medico-Chirurgical Journal* entitled "Puerperal Eclampsia," and in which he seeks to show the great value of timely venesection. After reviewing a case, he says: "This case is only one of many others which I have published from time to

time, in order to prove the efficacy of venesection in puerperal convulsions, and thus to rescue, if possible, from unmerited oblivion a most valuable but, in the present day, most unaccountably neglected remedy." Further on, in a note appended to his paper, the author, having late cognizance of Dr. Pye-Smith's defense of venesection before the Royal Medical and Surgical Society of London—noticed editorially in this Journal not long since—continues as follows: "It is, therefore, very gratifying to find that I am not alone in my attempts to rescue so important a remedy from oblivion."

DISEASES OF THE TROPICS.—An authoritative consideration of those diseases which give to the tropics their greatest stigma brings out the conclusion—based largely upon military returns—that although malaria is the most widely diffused and the most commonly talked of and dreaded affection, yet dysentery is without question the most fatal.

FAULTY CONSTRUCTION OF HOSPITALS.—In an Editorial Note in the last number of THE JOURNAL, in making reference to the recent fire in the Brooklyn Naval Hospital, while censuring such construction of Hospitals as will permit by means of wooden elevator shafts and dust shutes the rapid communication of fire to the entire building, we were led to infer that the Naval Department had been remiss in its duty in replying to solicitations from its medical officers.

The following note from one well known to the profession, and so related as to be an authority upon this subject, so entirely exonerates the Naval Department from such criticism that we cheerfully give place to it:

To the Editor:—I regret that THE JOURNAL has been misled in its account of a fire at this Hospital by a malicious sensational report in a daily paper. The reflections on the Washington authorities are unauthorized, uncalled for, unfounded and untrue. I have never made any request that has not been generously granted and without stint. The trifling damage was promptly repaired at slight expense. ALBERT L. GIHON,
Medical Director in charge.

Brooklyn, N. Y., April 26, 1891.

MEDICAL ITEMS.

THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA will hold its annual meeting at Asheville, May 26, 27 and 28, 1891. The effort will be made to make the meeting one of unusual interest and pleasure. The scientific and the social features offer special attractions. The railroads and hotels are granting special rates. North Carolina ought to be more fully represented in our National Organization, and we trust that her leading medical men will give their influence in this direction.

ILLINOIS STATE MEDICAL SOCIETY, John P. Mathews, Carlinville, President; D. W. Graham, Chicago, Secretary. This old and able Society will convene this year at Springfield on May 19. Its sessions are always interesting, and the programme before us gives assurance that the coming meeting will well maintain the standard of excellence so long established.

DR. F. S. BILLINGS, who formerly held that position, is again appointed Director of the Patho-Biological Laboratory of the State University of Nebraska.

JAPANESE CENTENARIANS.—The authorized report of the census returns of Japan, completed December 1, 1889, shows a total population of upwards of 40,700,000. Sixty-five persons were found who had reached their one hundredth year of life, 45 were one hundred and one, 13 were one hundred and two, 4 were one hundred and three, 1 was one hundred and four, 9 were one hundred and five, 3 were one hundred and six, 1 was one hundred and seven, and 1 had reached his one hundred and ninth year.

THE LUXURY (?) OF TUBERCULOSIS.—Now that cod-liver oil has advanced about 400 per cent. in price, and with tuberculin at no inconsiderable figure, there may be some measure of satisfaction to the proud consumptive in the reflection that he is certainly not having "cheap" dosage.

AN UNFORTUNATE OCCURRENCE.—A late exchange comments under the heading: "Arsenic in the Massachusetts Legislature." This certainly awakens our deep sympathy that so poisonous a drug should get into an assembly of lawmakers. We have often heard of whisky getting into such distinguished bodies—it has even been hinted that our National Legislature occasionally suffers in this way—but this is quite the first time we have ever heard of an arsenious legislature. We would recommend the hydrated peroxide of iron at once.

TOPICS OF THE WEEK.

GOOD POINTS FOR STUDENTS AND DOCTORS.

Dr. W. H. Steele, in *Items of Interest*, says:

Our colleges will turn out an unusually large number of graduates in the spring, who undoubtedly expect to locate in some Canaan of promise and build up a practice. It shows push and pluck for a young man to strike out for himself, much more so than to buy out a practice or partnership. We all, who have tried it, know it requires many things besides a sheep-skin to successfully conduct a practice. I will give a few points, many of which I have learned from sad experience, so that others may profit by my errors and losses.

Don't neglect your business.

Don't misrepresent anything to get business.

Don't try to economize by using cheap material or poor instruments.

Don't make any promises, either financial or professional, that you cannot fulfill.

Don't lock your office during office hours to go off on a frolic, or to attend to any side show, or for any other purpose that can be avoided.

Don't try to tear down a competitor's reputation on which to build your own; it makes a rotten foundation.

Don't forget that the poor have feeling, as well as the rich, and are just as deserving of respect and your best services.

Don't be cross to the little ones; some day they will be men and women, and they will remember you for good or for bad.

Don't fail to take several good journals, and to keep yourself posted on all new instruments and improvements.

Don't buy a bill of goods because they are cheap or you can get time on them. Do a cash business, and be a cash customer to every one. It will wonderfully enhance your reputation in the community.

Don't repeat some slanderous story that may have been told you by talkative patients while operating for them.

Don't let a "good enough job" go out of your office; do your very best every time for your patient. By this means you will improve your work, improve your patronage, and improve your bank account.

Don't fail to be prompt in collecting and paying your bills, if from any cause you feel obliged to give or receive credit. By so doing you will gain and keep the confidence of all.

Don't use tobacco in any form; it is certainly of no benefit to you, and, to say the least, will work you harm physically, morally and financially

Don't use intoxicating liquors, for intemperance is the rock on which many a good practice has been stranded, and any indulgence leads to excess.

Don't forget there will come a time when your eyes will grow dim, and your hand lose its cunning. It is when you are young, healthy and prosperous that you should lay aside something to fall back on in sickness and old age, and when you will be glad to be able to reflect that you are leaving a busy, bustling world better for the part you have played in it. A serene, satisfied old age, well provided for, must be delightful.—*Cincinnati Medical News.*

CLINICAL ART.

Visitors to the Paris Salon are only too familiar with a certain phase of Impressionist art, which depicts medical men carrying on their every-day work, and even follows the hand of the surgeon into a variety of practical details ranging from vaccination to ovariotomy. Our own English school does not lend itself so readily to this unpleasant realism, but every now and then we find a peep taken into the hospital ward or the sick room, and some little idyl of domestic medicine worked out with a quiet pathos which is apt to call into sudden activity the functions of the lachrymal gland. Many of us remember John Faed's "From Dawn to Sunset," and "Tired Out;" and Fildes's stalwart navvy gazing with speechless misery at his dead child can hardly be forgotten by those who have seen the impressive work which now finds a somewhat inappropriate resting-place at the Holloway College. This year the brilliant painter of bright scenes returns to his early love, and gives us another touching little domestic drama on the stage of humble real life. A sick child lies on a hastily improvised bed in the middle of a poorly-furnished room, and the doctor, before he disturbs its half-comatose sleep for further examination, takes a long and keen diagnostic glance at the pale face and limp lying arms. There are obviously difficulties in the case, and he is evidently puzzled, whilst the uncertainty of the situation is reflected by the father, who, standing in the background beside his despairing wife, eyes the arbiter of his child's destiny with an anxious look, and waits patiently for the verdict. The lamp-light throws a ruddy glow over principal actor in the scene, and through the eastward window we see the chill light of the early morning just beginning to make itself felt. When visiting the studio our representative met several physicians who were speculating with keen professional interest as to the intentions of the artist. What is the matter with patient? Is the prognosis hopeful or hopeless?—and on these points a wholesome difference of opinion existed. One pronounced for tuberculous meningitis, and a necessary fatal result. Another, relying on the absence of certain diagnostic symptoms, decided in favor of fever, and a favorable prognosis. Mr. Fildes, on being appealed to, wisely declined to give any opinion of his own. The picture is simply called: "The Doctor," and he leaves those who look at it to puzzle out its meaning for themselves; and if one object of art is to stimulate thought and encourage mental speculation, then success has been perfectly attained, and the pathetic force of this masterly work will combine with the rich and harmonious coloring and the perfection of complete yet unobtrusive detail to render it one of the most attractive pictures of the coming Academy. It will be good news for the art-loving world to hear that it has been bought by Mr. Tate, and that we may therefore hope to find it included in the fine collection which he has so generously presented to the nation. By a curious coincidence Mr. Dicksee has this year worked on very much

the same lines as Mr. Fildes. Under the name of "The Crisis," he represents a sick girl sleeping that slumber which may end in the more permanent sleep of death, or lead on to the joyful awakening into convalescence. Worn out by long watching the anxious father fixes his eyes on his daughter's face, and waits for Nature to say the word which will fill him with joy or sorrow. There is something very fine about the blended look of half-puzzled expectation mixed with a kind of hopeful resignation, which fills the eyes and shades the brow of the impressive father's head, which rests on and is partly hidden by the thin hand. And again we begin to try and look into future. But it is very difficult to say how things are to go in this case. The patient is thin and worn and thoroughly exhausted, but sleep may do much for her, and "the crisis" may be past when she wakes. As the visitor turns away from the canvas he cannot help recalling a well-worn quotation from Hood:

We thought her dying when she slept
And sleeping when she died.

—*Brit. Med. Journal.*

OLD AGE AS A FACTOR IN SURGERY.

Dr. N. F. Graham, of Washington (*Medical News*, February 7, 1891), reports eight cases observed by himself, and refers to others published in this country, which show wonderful recuperative powers in very old men and women. With regard to advanced age being a contra-indication to surgical operation, it is held that if the patient be in fair general health, with an hereditary tendency to long life, mere old age is not a good reason for withholding treatment, either with the view of prolonging life, or for the relief of acute suffering. As a rule, old people, Dr. Graham states, tolerate pain better than the young, but with them shock is more severe and not so quickly rallied from. In shock lies the greatest danger to the aged, and if the patient rallies, the prognosis, so far as repair is concerned, may be considered good. They endure operations for pathological conditions, such as new growths, remarkably well. Their recovery from accidental wounds is not so rapid.

LADY APOTHECARIES.

The tyrant, man, is slowly but surely being driven behind the last breastworks of his professional monopolies, and woman is everywhere more or less triumphantly asserting her "rights." Not content with prescribing drugs she now insists on compounding them. A *projet de loi* has just passed the French Chamber of Deputies admitting properly qualified women to the practice of pharmacy. Frenchmen are nothing if not chivalrous, and it is therefore somewhat surprising to find them considerably behind other nations in this respect. In Norway women have for the last six years been allowed to study pharmacy and to manage and own drug shops. About ten women are at present employed in pharmaceutical establishments either as pupils or assistants, but not one of them has presented herself for the final examination. In Denmark only two women have, in the course of many years, taken up pharmacy, and neither of them has "qualified." In Finland there are seven female apothecaries, none of whom, however, have passed the final examination; indeed, since 1884 no lady has applied for admission. In Russia ladies have, since the beginning of last year, been entitled to become pharmacists, and nine, having completed the requisite preparatory studies at Zürich, have passed the Russian examination. Courses of instruction in pharmacy for women have already, as we stated a week or two ago, been established in one of the St. Petersburg hospitals, from the dispensary of which the fair pillmakers have already succeeded in ousting the rival sex. The facts which we have mentioned seem to show that the strong-minded sisterhood have not the devouring enthusiasm for pharmacy which they display for medicine, though it is an occupation for which they are in some respects especially well fitted. This indifference may perhaps be due, at least in some measure, to the comparatively little opposition they have met with in the attack on that particular male citadel.—*British Medical Journal.*

TUBERCULIN.

The following charade was written by a patient recently under treatment by Koch's method at Banff, Scotland, and sent to the *Lancet* by Dr. William Fergusson:

My *first* lies at the root of things,
With homely earth is soiled,
Yet at the festive board of kings
Is always welcome—boiled.

My second o'er the level green
Impels the polished ball;
Where "cannons" rattle it is seen,
Yet loves the peaceful "stall."

My *third* around the green earth lies,
No angel ever saw it;
'Twas never viewed by mortal eyes,
Yet men must somewhere draw it.

When wasting sickness crowns the ills
By hapless men endured,
My *whole* fresh strength and hope instils,
And whispers "Be thou cured!"

—*Boston Medical and Surgical Journal.*

THE MONKEY SOLVES THE PROBLEM.

Monkeys have a keen sense of imitation and are always prone to copy their master's movements whenever fancy strikes them. Seldom, however, is it that a monkey has proved itself useful by such an undesirable propensity. Yet one of these inquisitive creatures has, we understand, recently performed a feat in the matter of medicine-taking, and by so doing has earned for itself a reputation which deserves recognition. This is how it was: A practitioner recently received a box of Count Mattei's medicines, and one of his children getting hold of the box gave it to a tame monkey in the house. The animal very soon broke open the box, and taking a vial of anti-canceroso, which is used as a cure for leprosy, swallowed 750 globules, besides some other fever medicines. The proper method of taking the anti-canceroso is to dissolve *one of the globules in a quart of water*, and the dose is a teaspoonful at a time. The monkey, however, is not only quite well, but as lively as ever, and must now be impervious to leprosy. Clearly, if the monkey had been able to read he would have been more discreet with Count Mattei's remedies, but as no harm happened to him, the presumption is that the remedies are harmless however they are taken.—*Medical Press.*

PRACTICAL NOTES.

FOR ITCHING IN SCARLET FEVER.

Itching in scarlet fevers is not always agreeable, and it has never been supposed to be a favorable sign, but St. Phillippe (*Rev. Mens. des Mal de l' Enf.*, February, 1890), according to A. F. C., in *Archiv. Ped.*, in a paper presents the following conclusions, viz.:

1. Scarlatina is often a disease which is accompanied by itching.

2. This variety usually has a favorable prognosis.

3. The itching is due to the fact that the eruption is not intense and the cutaneous lesion not very profound.

The best application for the relief of this itching, or almost any other for that matter, is the following:

℞. Campho-phenique, ℥ ss.
Abolene unguent, ℥ jss.
℥. Sig. Apply night and morning.

Another advantage is that it is in the direction of personal disinfection.—*Medical Mirror.*

DENTAL CARIES.

The following prescription has been suggested:

℞. Acid. tannic., gr. lxxv.
Tinct. iodinii.
Tinct. myrrhæ, āā f ℥ j.
Potassii iodidi, gr. xv.
Aquæ rosæ, f ℥ vj. ℥.

Add a teaspoonful to a small glass of water and use daily as a mouth wash.—*Pharm. Record*, March 5, 1891.

CHRYSAROBIN IN PSORIASIS.

Dr. Unna recommends

℞. Chrysarobin, 5 parts.
Salicylic acid, 2 parts.
Ichthyol, 5 parts.
Vaseline, 88 parts.

Made into an ointment and to be rubbed into the affected parts.—*Nouveaux Remèdes.*

FOR ANGINA PECTORIS.

The indications for treatment during the paroxysms are the following (Dr. W. R. Jackson, *Va. Med. Monthly*, Feb., 1891):

1. To relieve pain, by hypodermic injections of morphia or inhalation of ether or chloroform.

2. To stimulate the heart to action—by use of brandy, whisky or sulphuric ether by hypodermic injections or by the mouth.

3. To keep or maintain the continued rhythmical action of the heart, and to diminish the arterial tension, which is best done by nitroglycerine, nitrite of amyl, or electricity or galvanism. The cases most amenable to treatment are the purely cardiac kind, without any cardiac lesions.

Dr. Anstie gave arsenic as a tonic and preventive. It is well to put your patient on a tonic of iron and arsenic, or quinia with some aromatic. If there is a gouty or rheumatic diathesis, it should be met by appropriate treatment, and a suspicion of syphilis should likewise be suggestive. Sea-baths and travel are to be recommended. The patient should avoid all commotion—moral and physical; he should lead a quiet, cheerful life, and should religiously abstain from tea, alcohol, and tobacco.—*College and Clinical Record.*

APPLICATION FOR ACNE ROSACEA.

Dr. Unna, of Hamburg, has produced what he believes to be an ideal preparation of ichthyol for application in cases of acne rosacea. It is prepared by combining it with starch in the following manner: Forty parts of starch are moistened with twenty parts of water, and this is well rubbed up with forty parts of ichthyol, and finally, one or one and a half parts of a strong solution of albumen intermixed with it. This is applied to the skin at night; it dries in about two minutes, and can be easily washed off in the morning. As there is no fatty matter in this varnish it is eminently suited as an application in lupus erythematosus, or, as Unna calls it, "ulerythema centrifugum," in which fatty matter is to be avoided.

FOR ERYSIPELAS.

℞. Ichthyol, ℥ ij.
Ether, ℥ ij.
Collodion, ℥ iv. ℥.
S. Paint over and around infected area.
—*Prov. Med. Journ.*

ACETANILID AS AN ANTISEPTIC.

Early in the days when acetanilid was first introduced, some prominence was given to its antiseptic properties, but in the crowd of substances specially introduced as members of the "antiseptica," this field of usefulness for it was forgotten. Quite recently its virtues in this direction have been accentuated by the descriptions of its use instead of iodoform in the treatment of hard and soft venereal sores. The chancre is simply dusted with the powdered compound, and the result is said to be a rapid and complete healing. The advantages of the odorless and non-toxic acetanilid over iodoform need no emphasis; while for hospitals and dispensaries its cheapness would further recommend it if increased observation confirm these statements.—*Provincial Med. Jour.*

SOCIETY PROCEEDINGS.

Tennessee State Medical Society.

Fifty-Eighth Annual Meeting held in Nashville, April 14, 15, and 16, 1891.

FIRST DAY—MORNING SESSION.

The Society met in Watkins Hall, and was called to order by THE PRESIDENT, DR. GEO. A. BAXTER, of Chattanooga, at 10:30 A.M.

Prayer was offered by REV. C. D. ELLIOT, of Nashville.

The first paper read was by DR. T. J. HAPPEL, of Trenton, on

ABSCESSES.

He said this field was a profitable one for thought and investigation, especially in the direction of diagnosis. So far as the treatment goes, the Latin expression *ubi pus, ibi incisio*, gives us the therapy of such cases in a few words, so far as their last stages are concerned. The prophylactic treatment is a different matter. Everything that can be done to prevent pus, to prevent the development of an abscess, must be resorted to, but when pus is present the knife is the instrument for relief. An aspirator can remove the pus itself, but the cause of it, the pyogenetic something, is left behind. A free outlet must be given to the pus, the cavity carefully cleaned, perfect drainage secured, arrangements made for thoroughly flushing the diseased organ with antiseptic fluids, the strength of the patient maintained by a generous diet, and nature aided by an abundance of pure fresh air to repair the broken-down constitution.

Dr. Happel reported a case of abscess of the spleen. He said this was a rare trouble, many of our best authorities never having met with a single case. He had in the course of seventeen years practice found two cases; one due to pressure upon the organ; and the other to chronic malarial poisoning. He also reported a case of abscess of the cornea forming hypopyon, and one of the liver, which came under his observation. In closing he called attention to the peroxide of hydrogen as one of the best, if not the best, of all agents, used to cleanse and restore to a normal state all pyogenic membranes, surfaces and cavities. As one writer expressed it: "It hunts out pus in all its ramifications as a ferret does a rat."

AFTERNOON SESSION.

DR. GEORGE R. WEST, of Chattanooga, read a paper on

OVULATION AND MENSTRUATION.

He said that individual opinions and theories are as those who love darkness rather than light, and insist upon remaining in darkness rather than to be disturbed by the entrance of facts which might bring light. The subject of ovulation and menstruation, their dependence or independence, is one of these benighted fields where individual opinions and theories run riot, and where the light of facts gained from research and experience is so perverted as to render uncertain the supposed certainty that has previously existed.

After giving a résumé of the literature on the subject, Dr. West drew the following conclusions:

1. That the increased familiarity with the pelvic organs, the result of modern surgery, has not materially added to our knowledge of their functions.

2. That though the ovular theory of menstruation has not been overthrown, yet the weight of accumulating evidence seems against it.

3. That the most recent observations point to a common nervous origin for both ovulation and menstruation, and yet an individual independence.

DR. THOMAS M. WOODSON, of Gallatin, contributed a paper entitled

TREATMENT OF PNEUMONIA; THE PAST AND PRESENT METHODS; HAS THE RATE OF MORTALITY BEEN CHANGED?

He briefly reviewed the literature on pneumonia to illustrate the opinions of medical teachers and writers. He was glad that Hare, of Philadelphia, in his work on "Practical Therapeutics," revived the old lines of treatment. He extolled veratrum veride, and said that in the first stage of the disease it is very useful as a medicant. Its two alkaloids possess different influences and that between them they fulfill every object that is sought for. *Jervine*, a powerful vaso-motor depressant, relaxes the walls of the blood-vessels everywhere, at the same time it quiets the action of the heart by an action over its muscle or ganglia as to reduce its force, thus preventing engorgement of the lung; while *veratroidine*, by stimulating the inhibitory nerves of the heart, also slows its beat, fills the ventricles and allays excitement. The advantages of veratrum veride are its completeness and rapidity of action; the fact that it preserves in healthy blood-vessels the blood which may be needed in the crisis, if the disease is not aborted, and its safety, is a point largely in its favor. In the second stage to prevent heart failure by engorgement from over-distension, Dr. Hare gives digitalis with strychnine to stimulate the respiratory centres; that he thinks alcohol in the second stage is inferior to digitalis; carbonate and muriate of ammonia are valuable adjuncts in the second and third stages. He uses opium sparingly for troublesome cough in the later stages, and not in the first stage.

In the first stage of croupous pneumonia the indications, said the speaker, are clear: 1. To control the circulation and diminish the determination of blood to the lungs; 2. To reduce

the temperature if high; 3. Allay pain by both physical and physiological rest; 4. Support the vital powers.

The first two indications are met by veratrum viride better and with more certainty than any other. The third, to allay pain, we have but one remedy—opium or its salts, which stands without a rival. Fourth, to support the patient with especial reference to failing heart and respiratory centres; digitalis, strychnine and alcohol for the later stages.

More than twenty years ago the speaker expressed the opinion that in inflammatory affections veratrum viride was a sedative of the greatest value, controlling the action of the heart as effectually as blood-letting, without the exhaustion incident to the latter. Arterial excitement is reduced by it, while the vital forces are economized. It is especially adapted in pneumonia in the stage of engorgement in which it appears to bring about prompt resolution. It may be used in the treatment of children with safety. Its constitutional effects having been secured, there is a reduced force and frequency of the circulation, reduction of temperature and respiration, and an amelioration of all the symptoms of the disease. While extolling the virtue of veratrum viride, he would not rely on it alone in pneumonia, as opium was unquestionably entitled to a prominent place, palliative and curative in its action, allaying pain, cough and nervous irritation, available in the latter as well as the early stages.

PHTHISIS PULMONALIS, WITH ESPECIAL REFERENCE TO PROPHYLAXIS,

was the title of a paper contributed by DR. J. R. BUIST, of Nashville.

As physicians, impressed with the claims of suffering humanity, we should never relax our efforts as long as consumption, with its multiplied ills, afflicts our race, with its sickness, pain, and death. Nor have we any right, as scientists, to despair of the ultimate triumphs of knowledge and the practical results of scientific research. The acknowledged failure of all the proposed plans for the cure of phthisis, based upon therapeutical agents, should lead us upon other lines of effort for its destruction. The impossibility of procuring for the mass af consumptives the benefits of climate and altitude, even if these benefits approximated the value some assign them, should admonish us to look to the higher plane of preventive medicine in dealing with this disease.

Regarding Koch's *paratoloid* as a remedy for consumption, Dr. Buist said the high expectations so recently excited in these inoculations do not seem to be verified. Certainly for advanced stages of phthisis, and many other conditions of tuberculosis it is unsuited and positively dangerous; and it is not settled whether any benefit can attend its use in the incipient cases. In making this statement, he would not detract anything from the real value and merit of the discovery, and meant no disparagement of the genius of Koch.

Preventive medicine is after all the acknowledged aim and end of scientific research. Though still in its infancy, it has accomplished wonders for humanity. And it is obvious that its first and highest triumphs are to be won among the class of zymotic and infectious maladies. The power of prevention is incalculably more precious than any therapeutical measures. It is therefore highly incumbent upon us individually and collectively to assure ourselves of the modern theory of consumption, and so convinced, we should direct our attention and efforts to a rational prophylaxis of this fatal disease.

It may be said that the true difficulty is to get the public to realize its danger from various sources, and still more to have wise prophylactic measures adopted. This is in the main true; yet education can perform wonders. The benefits of sanitary reform are now acknowledged and trusted, although fifteen years ago it met with indifference and opposition.

The speaker closed with the words of Dr. E. O. Shakespeare, of Philadelphia: "What use was it for Koch to have made his discovery of the infectious nature of the bacillus tuberculosis, if the practitioners of medicine, those who come in direct contact with the people, who are the natural agents for arousing such a public sentiment and enforcement of laws for the protection of public health, utterly neglect to act upon the ample and exact knowledge which we possess concerning the etiology and prophylaxis of tuberculosis."

EVENING SESSION.

The public were invited to attend this session. Addresses were delivered by Hon. William Litterer, Mayor of Nashville, Hon. H. H. Norman, and Judge J. M. Dickinson. Dr. Geo A. Baxter also delivered at this session the Presidential Address, his subject being *Topics of Import to the Profession and Public.* The address was scholarly, very instructive, and was listened to with marked attention.

SECOND DAY—MORNING SESSION.

DR. J. S. CAIN, of Nashville, read a paper on

CHRONIC ENDOMETRITIS,

in which he said the question as to the localization of the chronic form of endometritis is rendered more prominent than that of the acute form on account of the conflicting opinions, entertained by distinguished authors and teachers. None, he believed, questioned the very frequent occurrence of chonic cervical endometritis, but Drs. Emmet, Bennett, and other very distinguished authorities, almost absolutely ignored the existence of chronic

corporeal endometritis as a special disease, and consequently except for the relief of hæmorrhages, and to meet temporary emergencies, discountenance all intra-uterine medication, relying entirely upon treatment directed to the urerine os and vault of the vagina. But the great preponderance of medical authority is averse to the opinions entertained by these gentlemen, and with the latter class he was entirely in accord.

Chronic endometritis and the conditions necessarily allied therewith are the most common as well as the most important diseases with which the gynècologist has to deal. This condition is often a sequel to the acute form of the disease, and grows out of repeated acute attacks. It matters not how or from what source the acute outbreaks originate, whether from catarrhal, specific, traumatic or internal constitutional causes, they are often, but not always, the starting-point from which not only the endometrium but the entire uterine and periuterine parenchymatous structures become involved. He would here venture the assertion, that while the change in structure and function of the lining membrane of the uterus often seem to be the most prominent conditions, and those which demand our first and most careful attention, this tissue is probably never chronically diseased without a corresponding involvement of the entire uterine structures.

Treatment.—While the curette, as has been said, is a blind instrument and capable of doing harm in careless and incompetent hands, yet for the removal of fungoid vegetations and adenoid degenerations from the endometrium, it affords the surest, speediest and safest means as yet devised. Dr. Cain is accustomed to following the curetting by an application of Churchill's tincture of iodine or diluted carbolic acid, as is the usual practice, and always precedes the treatment by a careful washing out of the vagina and uterus with a disinfectant of one to two thousand corrosive sublimate.

In cases where this treatment is not admissible, or where it has failed to afford relief, his next reliance is on the electro-chemical action of negative galvanism, in removing the vegetations after the method of Apostoli. This is accomplished by introducing an electrode, insulated to near the point, into the uterine cavity, and connecting with the negative pole of the battery, connecting the other pole with a large pad of moistened potter's clay, sponge or prepared cotton, placed over the abdomen. The time for employment of the galvanism at each treatment should be from ten to fifteen minutes, and the treatment should be repeated about twice a week.

The strength of the current to be employed will depend much upon the acuteness of the particular case, and the susceptibility of the patient to electrical treatment. The chronic cases always require the stronger current. The dosage may be fixed at from ten to three hundred milliampères; the minimum is, in his judgment, too small to accomplish any good results, and yet physicians with much larger experience have had to employ it.

This line of treatment he considers free from many of the objections to others; it is cleanly, free from pain, and exempt from danger. Unlike cauteries and escharotics it can be limited in its influence and produces no deleterious effects upon the sound tissues, nor does it leave a raw and exposed surface like the curette to absorb poisons and septic agencies, and while it removes the vegetations it imparts renewed tone and vitality to the diseased organ.

(*To be concluded.*)

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Phthisis by Inoculation with Vaccine Lymph — Bellevue Hospital Training School for Male Nurses—Hospital Saturday and Sunday Association—The Establishment of Public Hospitals—Care of the Insane Poor—Miscellaneous Items.

It will perhaps be remembered that some time ago reference was made in this correspondence to the treatment of phthisis by inoculation with vaccine lymph, as practiced by Dr. J. Hilgard Tyndale. At the last meeting of the New York County Medical Association, Dr. Tyndale, in reading a paper on this subject, presented nine patients who had all shown the presence of the tubercle bacillus in their sputa, and most of whom had cavities in their lungs, who, he claimed, had all either recovered or were in a fair way to recovery from their tuberculous trouble. Altogether he has treated twenty-three carefully selected cases by this method, and he stated on this occasion that in the other fourteen the same favorable results had been noted as in the nine that he exhibited. He lays great stress on exact and localized diagnosis, and would select for inoculation cases in which are found more or less active cavities and infiltrations, with suppurative expectoration, coupled to a not entirely hopeless general condition. No cases of pure connective tissue proliferation, nor of general or localized cirrhosis of the lung (in other words, peri-bronchitis), and no cases of purely mechanical disturbances of respiration caused by the binding down of lung tissue by pleuritic adhesions, nor cases in which diffused dry, sibilant râles, heard all over the chest, distinctly point to obstruction in the upper air passages, are regarded as suitable for this method of treatment. Cases in which

the bacilli are no longer localized, but have become disseminated throughout the lungs, are admitted by Dr. Tyndale to be incurable by his own or any other treatment that has as yet been devised.

For each injection he usually employs the contents of one capillary tube, about 2 drops, of pure vaccine lymph, and he mixes with it 15 drops of distilled water and 1 drop of glycerine. The fluid is injected subcutaneously near the seat of trouble by means of an ordinary hypodermic syringe. At first the injections are made at intervals of from six to eight days, but after the bacilli have disappeared and the expectoration has become sparse and of a mucus character, they are made only once in every two, three or four weeks. At the third and fourth injections the contents of two tubes are often used. No violent reaction follows the injection, but the temperature usually rises from one to two degrees in the course of from eight to twenty hours, and more or less frontal headache is apt to be experienced. As long as the signs of active tuberculosis remain, no supporting treatment is adopted, but as soon as these have disappeared, means for the promotion of blood and fat formation, varied according to the circumstances of the special case, are at once inaugurated. Lung gymnastics, consisting of five deep inspirations every twenty minutes throughout the day, also constitute an important part of Dr. Tyndale's treatment.

So far as known, the twenty three cases mentioned are all that have as yet been treated by the vaccine lymph inoculations, but the impression made by the paper and by the nine patients exhibited was such that it is probable that before long the method will be tested by a series of investigations sufficiently extended to show whether it is really of permanent value or not. In regard to the treatment of tuberculosis in general, Dr. Tyndale's idea is that more than one animal and chemical virus will be found to accomplish the same object, and that the secret of the whole matter lies to a great extent in a correct diagnosis and the adaptation of the remedy to each individual case.

Since the meeting at which his paper was read it has been suggested that a commission should be appointed by the County Association to make a thorough investigation and report upon Dr. Tyndale's method, and it is probable that this will be done.

A very interesting occasion was that of the graduation of the first class of pupils from the Bellevue Hospital Training School for Male Nurses, which was established two years ago through the liberality of Mr. D. O. Mills, and was probably the first institution of its kind in the world. There were seventeen graduates, and a remarkable feature in regard to the class was the diversity of the localities from which its members hailed. One was from New York City, two from other parts of the State of New York, two from New Jersey, two from Pennsylvania, one from Connecticut, one from Massachusetts, one from Michigan, and one each from London, Berlin, Copenhagen, Edinburgh, Paisley, Scotland, Wales, and Clare, Ireland. The diplomas were presented by the founder, Mr. Mills, himself, and addresses were delivered by ex-Mayor Abram S. Hewitt and the Hon. Chauncey M. Depew. Since the school was established there have been in all 115 pupils, and there are at present 43 in attendance.

The Hospital Saturday and Sunday Association's distributing committee recently met at the Mayor's office, and made the annual apportionment of the money resulting from the annual public collection for the hospitals. The amount collected this year was $58,297, and of this $49,000 was distributed to the various institutions represented in the Association in accordance with the number of free days of treatment furnished by each during the year 1890. The hospitals receiving the largest amounts are the following: Mount Sinai Hospital, $6,789; St. Luke's Hospital, $5,930; Montefiore Home for Chronic Invalids, $5,020; German Hospital, $4,890; and the Hospital for Ruptured and Crippled, $4,677. On Easter Sunday the Rapid Transit Electric Railroad Company, of Newark, N. J., generously gave all its receipts to the three hospitals of that city which are supported by charity—St. Michael's, St. Barnabas and the German. The traffic was unusually heavy, and as many of the passengers paid bills instead of nickels for their fares, the amount realized was the handsome sum of $902.

The noted Fayerweather will contest having been brought at last to an end, many of our hospitals will receive substantial additions to their endowments. Thus the Woman's Hospital is to get from the estate $210,000, St. Luke's Hospital, the Presbyterian Hospital and the Manhattan Eye and Ear Hospital each $50,000, and Mount Sinai Hospital, the New York Eye and Ear Infirmary, the Manhattan Hospital and Dispensary, the New York Cancer Hospital and the Montefiore Home for Chronic Invalids, each $25,000

A gratifying mark of progress in this close of the nineteenth century is the establishment of public hospitals in so many of the smaller cities and towns of the country. In the village of Sing Sing, on the Hudson, there has just been opened the Ossiming Hospital, a substantial building containing thirty rooms and fitted up with all needful appliances. It stands on a two-acre lot in a healthful location, and is lighted with gas and supplied with water from the village system.

The bill appropriating $454,000 for carrying out the provisions of the law establishing State care of the insane poor, which was enacted a year ago, has happily passed the Legislature and re-

ceived the Governor's signature. The State policy in regard to this matter having been once settled, good faith required that the appropriation should be made, to give full effect to the beneficent measure which was the result of so many years of agitation and effort. Yet it had to encounter the same opposition that this grand reform movement has always met with, and at one time Albany fairly swarmed with county supervisors and with lobbyists who spared no effort to defeat it. While the bill was pending the Medical Society of the State of New York was in session, and it adopted resolutions strongly urging its passage. The annual report of the State Commission in Lunacy for 1890 shows that the money thus appropriated will be sufficient to provide for all of the insane poor now unprovided for by the State, when used in conjunction with appropriations which have been already made and with other provisions which have been secured. The claim which had been put forth by the enemies of this movement, that the State hospitals for the insane are all badly overcrowded, is shown by the report to be almost entirely without foundation. Moreover, the Commission shows in its estimate that it has left a liberal margin for the annual increase in the number of the insane in the State. While the report clearly indicates that the Commissioners do not favor overcrowding in the State hospitals, it is undoubtedly their opinion that even if this should exist to some little extent, it would be much better for the patients than to be crowded together in the wretched quarters and with the inadequate care provided by the county poor-houses.

Until within a comparatively recent period insanity was believed to be increasing with great rapidity relatively to the increase of population. The report of the State Commission in Lunacy shows, however, that at present insanity is apparently decreasing, rather than increasing, relatively to the general population. Notwithstanding the incalculable harm that has resulted from the legal division of the insane into two classes, the acute and chronic, or so-called incurable (one of the great evils against which the long agitation in this State has been directed), there is reason to believe that this favorable result has been chiefly brought about by the improved methods that have been more or less generally adopted in the treatment of the insane. Consequently, there can be little question that when all the insane poor of the various countries shall have been brought under the beneficent influences which prevail at the State Hospitals under their present enlightened management, the results will be even more satisfactory. The statistics presented in the report of the Commission show that in the State Hospital at Utica the percentage of recoveries among the patients has been 19.53, in the Buffalo hospital 29.19, in the Middletown hospital 16.16, in the Poughkeepsie hospital 18, and in the Asylum for Insane Criminals 3.96. The report outlines the history of the State's system of caring for its insane dependents, and shows that the present plan of management is in accord with the policy that has been adopted for the prisons and other large interests that require appropriations by the Legislature.

Like liberty, however, reform in the care of the insane by the State must depend on eternal vigilance for its maintenance, requiring constant efforts on the part of its friends. The State Commission in Lunacy, which has been so prominent in the movement, has naturally made enemies not only of a host of county officers, but of all the corrupt elements of the managing boards of the State Asylums, which have been practically superceded by it. The unchecked expenditure of from two to three million dollars yearly has been taken from them, and, as has been pointed out, the expenditure of large sums of money derived from State and other non-local sources by local boards can hardly be otherwise than extravagant and corrupt. The prize of the two or three millions annually required for the State hospitals for the insane is a tempting one, and there is considerable danger that a ring of public plunderers, now drawn from the hospital boards, or held in check by the Commission in Lunacy, may succeed in abolishing that body, and re-establishing their rights to these institutions as a local franchise and to the function of investigating themselves and their agents.

Since the appropriations required for the present needs of the State hospitals were made by the Legislature, a bill has been passed by the Senate which materially modifies the law for the State care of the insane so far as it applies to the State hospital at Middletown, which is in charge of a staff of homœpathic physicians; and the State Commission in Lunacy, the State Charities Aid Association, and all those who worked to secure the enactment of the existing law, are naturally strongly opposed to the adoption of this measure. Under the present laws, all the State hospitals are authorized to receive paying patients from all parts of the State, provided that there is room for such patients not required by the pauper and indigent insane for whose benefit these institutions are established. The proposed legislation (adopted by the Senate, but not yet by the Assembly), seeks to free the Middletown Asylum from this condition, leaving it optional with this hospital to fill its wards entirely with paying patients should it so desire, without restriction of any kind. The second part of the bill is designed to allow the Middletown State Hospital to receive indigent and pauper patients without restriction from all parts of the State, and to fix the charge to the counties for their maintenance.

This legislation, as pointed out by Prof. Chas. F. Chandler, President of the State Charities Aid Association, with which the State Care Act originated, would nullify two important features of the latter act. "That an effort," he says, in a letter addressed to the Chairman of the Committee on Public Health, "should be made to break up the State Care system, as provided by this law—a law which for three years has been under discussion by the entire press of the State, by three successive Legislatures, and has received the verdict of popular approval—before the law has had time to go into full operation, is much to be deplored. On October 1st, 1890, the State was divided into State asylum districts. . . . This provision of the law causes no injustice, and is working satisfactorily, and therefore I wish to express my dissent from that portion of the bill which gives the Middletown hospital the right to receive pauper and indigent insane patients from any part of the State, as tending to break down the State districting of the State Care act. Should the same privilege be extended to all the State asylums the valuable State districting features of the State Care Act would cease to exist. The other important feature of the State Care Act which will be nullified, should the Legislature grant special privileges to the Middletown State Hospital, is that which provides that after the State has been divided into asylum disiricts, the charge to the counties for their pauper and indigent insane in State asylums shall be the same for all the counties of the State. It seems to me right and just that the charges to the counties for the care of their pauper and indigent patients in State asylums should be the same for all the counties of the State, and therefore I am obliged again to express my dissent to that portion of the bill which exempts the Middletown asylum from this provision of the act. As President of the State Charities Aid Association I respectfully protest against the enactment of this special legislation, which I believe to be opposed to the best interests of the pauper and indigent insane of this State."

The University Medical School, which has just celebrated its 50th anniversary, had a very large graduating class this year, 203. The Bellevue graduates numbered 152, and those of the Long Island College Hospital, Brooklyn, 82. At a meeting of friends of the University called for the purpose of aiding in raising a fund of $500,000 for the needs of this institution Prof. Alfred L. Loomis recently stated that the medical department of the University on its present basis had reached its utmost possible limit of success. This year there was a matriculating class of 694, so that all the professors received salaries sufficient to compensate them. Without an endowment, however, it would not do to raise the standard of the school, since maintenance was dependent on the tuition fees of the students, and to do this would cause a falling off of about 30 per cent. in the attendance. Dr. Loomis said furthermore on this occasion that rich New Yorkers were pouring out their money for hospitals, while they allowed educational interests to suffer. He believed that at least $500,000 had been spent for hospitals in this city which ought to have been devoted to the latter. Consequently, New York had more hospitals to-day than the needs of the sick and indigent required, and nearly one-third of the patients in these hospitals who are able to be taken care of elsewhere. P. B. P.

To the Editor:—In your issue of October 11 there appears a paper by Dr. Wm. H. Daly, a nose and throat specialist of this city, on "The Medical Treatment of Diphtheria," containing statements that call for correction. The paper was read at the forty-first annual meeting of the American Medical Association at Nashville, June, 1890, and strange to relate, its claims for originality were not contradicted. The special treatment for diphtheria to which Dr. Daly refers, and which he claims as his own, is that by large doses of calomel. He says: "You will pardon me if I undertake to draw your attention again to a well-tried plan of treatment which I had the honor of bringing to the notice of the profession in a paper entitled, 'The Simplest and most Efficient Treatment of Diphtheria,' which I read before the Congress of the American Laryngological Association in Philadelphia in 1886." I propose to prove to you that the writer of both of these papers shows a lack of justice toward his professional brethren that is truly marvelous. The treatment of diphtheria by large doses of mercury was first practiced by Bretonneau in 1821, and his method of administering the drug, and his history of cases appear in the Transactions of the Sydenham Society. Dr. Daly may be ignorant of the work of Bretonneau, but he cannot enter such a plea as regards the work of the late Dr. Wm. C. Reiter, of this city. Dr. Daly and Dr. Reiter were fellow-townsmen and cotemporaries, and Dr. Daly, like the rest of Dr. Reiter's friends, cannot forget the earnest enthusiasm with which the calomel treatment was urged. Dr. Reiter's sole aim during his later years was to impress the value of the calomel treatment on the profession, and in pursuance of this effort he published in 1878, through the Lippincotts, of Philadelphia, a monograph entitled, "The Treatment of Diphtheria Based upon a New Etiology and Pathology." It is to this little book that Dr. Daly is indebted, not only for his ideas, but in many instances *for his very words.* Finally, Dr. J. Chris. Lange read a paper on the calomel treatment before the Mott Club, of Pittsburgh, of which Dr. Daly was a member, in 1882, and published it,

together with the discussion which it provoked, in the *Philadelphia Medical Times* of January 8, 1883.

It may seem a gratuitous labor on my part to make this correction, but I am convinced of the need of it by the citation, in Keating's Cyclopædia of the Diseases of Children, of Dr. Daly as the sponsor for the calomel treatment. A proper regard for the memory of Dr. Reiter prompts me to speak.

ADOLPH KŒNIG, M.D.

33 Ninth St., Pittsburgh.

SPECIAL CORRESPONDENCE.

Shall The Journal be Removed to Washington?

ACTION OF THE AURORA (ILL.), MEDICAL SOCIETY.

At the regular meeting of this Society, held April 7, the following preamble and resolution was read, and unanimously adopted:

WHEREAS, we as members of the Medical Profession, feel a deep interest in the prosperity and welfare of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, situated as it is near the geographical centre of its numerous subscribers and contributors, with facilities for its early and rapid distribution unsurpassed in the United States, and believing that its removal to the City of Washington, in place of being an advantage, would certainly be a detriment to its usefulness. Therefore, be it,

Resolved, that we cast our unanimous vote to have it remain in its present location and under its present able management.

To the Editor:—I have been a member of the American Medical Association for a number of years, and have taken THE JOURNAL ever since its first publication, and live 900 miles from Chicago, and always receive it on the day of its issue, and find it increasing in value and interest; therefore, cannot see what advantage could be derived from changing the place of its publication from Chicago to Washington. Under such circumstances I say, let it remain in Chicago.

A. M. MILLER, M.D.

Bird-in-Hand, Pa., April 20, 1891.

To the Editor:—The publication of THE JOURNAL is preëminently a business enterprise. If the place of publication is to be changed, good and sufficient reason must be shown for such change; no argument being necessary to maintain a location when it has prospered. No argument has been brought forward which a business man would consider for a moment as a reason for changing his place of business. Therefore, do not change.

HORACE M. STARKEY, M.D.

Chicago, Ill., April 23, 1891.

To the Editor:—Those doctors at Washington who have endeavored to transfer THE JOURNAL, had better come to Chicago; they will find much to their own advantage. At least the good of THE JOURNAL and Association can be best served at the geographical centre, Chicago. Decidedly no! Do not remove THE JOURNAL to Washington. "Do not put it under a bushel."

J. CH. DODDS, M.D.

Denver, Col.

MISCELLANY.

MISSOURI STATE MEDICAL ASSOCIATION.—The annual meeting of this Association will be held at Excelsior Springs, May 19th, 20th, and 21st.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from April 18, 1891, to April 24, 1891.

Major Alfred A. Woodhull, Surgeon, is detailed to represent the Medical Dept. of the Army at the International Congress of Hygiene and Demography, at its meeting in London, Eng., from August 10 to 17, 1891. He will leave his present station not later than June 1, 1891, and will proceed to London. After the adjournment of the Congress he will return to his proper station. While abroad under this order, and before returning to the United States, he will visit on official business such points in Great Britain as may be deemed necessary by the Surgeon General of the Army. By direction of the Acting Secretary of War. Par. 17, S. O. 91, A. G. O., Washington, April 22, 1891.

Capt. William F. Knudler, Asst. Surgeon, is relieved from duty at Jackson Bks., La., and will report in person to the commanding officer, Ft. Logan, Col., for duty at that post, reporting also by letter to the commanding General, Dept. of the Missouri. By direction of the Acting Secretary of War. Par. 2, S. O. 88, A. G. O., Hdqrs. of the Army, Washington, April 18, 1891.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending April 25, 1891.

Medical Inspector D. McMurtrie, detached from Navy Yard, New York, and to the U. S. S. "Lancaster."

Medical Inspector Edward Kershner, detached from Marine Rendezvous and to Navy Yard, New York.

Surgeon C. G. Herndon, from Naval Hospital, New York, and to the Marine Rendezvous.

P. A. Surgeon James E. Gardner, ordered to Naval Hospital, New York.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Two Weeks Ending April 18, 1891.

Surgeon P. A. Bailhache, to represent the Service at the annual meeting of the California State Medical Society. April 8, 1891. Detailed as chairman of Board for the physical examination of officers, Revenue Marine Service. April 14, 1891.

Surgeon John Vansant, detailed as chairman of Board for physical examination of officers, Revenue Marine Service. April 14, 1891.

Surgeon H. W. Austin, detailed as chairman of Boards for physical examination of officers and candidates, Revenue Marine Service. April 14 and 15, 1891.

Surgeon J. M. Gassaway, leave of absence extended five days. April 15, 1891.

Surgeon G. W. Stoner, to proceed to Alpena, Mich., on special duty. April 12, 1891.

P. A. Surgeon W. P. McIntosh, detailed as recorder of Board for physical examination of officers, Revenue Marine Service. April 14, 1891.

P. A. Surgeon G. M. Magruder, detailed as recorder of Board for physical examination of officers, Revenue Marine Service. April 15, 1891.

Asst. Surgeon T. B. Perry, ordered to examination for promotion. April 6, 1891.

Asst. Surgeon R. M. Woodward, ordered to examination for promotion. April 6, 1891.

Asst. Surgeon H. T. Goodwin, ordered to examination for promotion. April 6, 1891.

Asst. Surgeon G. T. Vaughan, ordered to examination for promotion. April 6, 1891.

Asst. Surgeon H. D. Geddings, detailed as recorder of Board for physical examination of officers and candidates, Revenue Marine Service. April 14, 1891.

Asst. Surgeon J. C. Perry, detailed as recorder of Board for physical examination of officers, Revenue Marine Service. April 14, 1891.

Asst. Surgeon J. F. Groenevelt, to rejoin station (New York). April 13, 1891.

Asst. Surgeon M. J. Rosenau, to proceed to Cairo, Ill., for temporary duty. April 13, 1891.